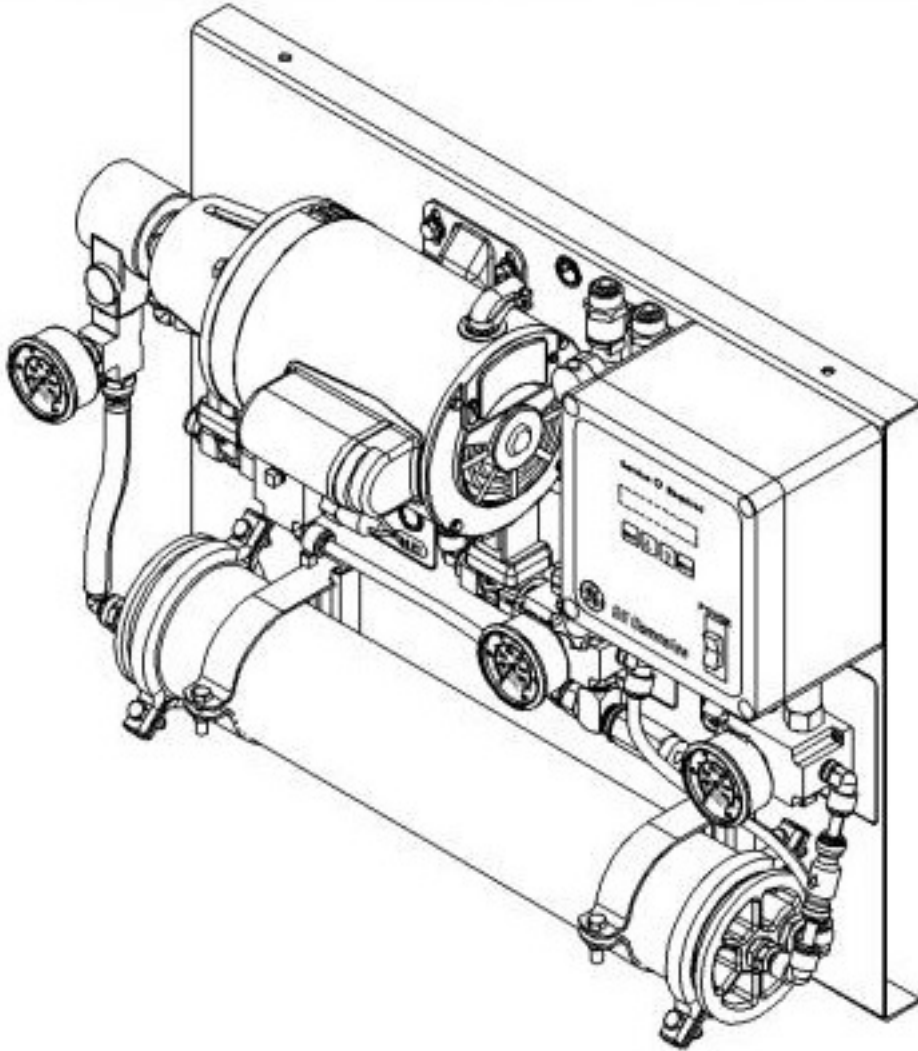


# BEV RITE

## WM-800 RO WATER PURIFICATION SYSTEM



### Troubleshooting & Service Manual



GE Infrastructure  
Water & Process Technologies

### **Company Information**

Company: \_\_\_\_\_

Contact: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

### **Machine Information**

Installation Date: \_\_\_\_\_

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

### **Service Assistance**

Consult the Troubleshooting Section. If the problem cannot be identified and corrected, contact your distributor. Prior to making the call, have the following information available:

Model Number	Daily Log Sheets
Serial Number	Operating Parameters
Installation Date	Description of Problem

### **Spare Parts**

Contact your distributor to order spare parts. Refer to the Spare Parts List.

**NOTE:** This manual, along with all GE Infrastructure manuals, is available at [www.gewater.com](http://www.gewater.com).

**Reverse Osmosis  
Water Treatment System  
Service Manual**

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**CAUTION**

To avoid damage to the RO system pump, shut OFF the RO when the system bypass valve is in the bypass position.

**System Components****Water Softener**

GE Water - ReadySoft or AdvantaPure

**Pre-filter Assembly**

GE Osmonics BEV Rite TO-320

**Reverse Osmosis Processor**

GE Osmonics BEV Rite WM-800

**Post Filter Assembly**

GE Osmonics BEV Rite PF-110

**Storage Tank**

RO mate RO30, or equivalent

**Service and Technical Support**

GE Osmonics customer support center: (800) 848 - 1750  
952 - 933 - 2277  
fax: 952 - 988 - 6030  
[www.gewater.com](http://www.gewater.com)

Mail can be sent to:

GE Osmonics, Inc.  
Attn: Customer Support Center  
5951 Clearwater Drive  
Minnetonka, MN 55343-8995 USA

**NOTE:** This manual, along with all GE Infrastructure manuals, is available at [www.gewater.com](http://www.gewater.com).

## System Specifications

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**Note ! Do not use with water that is micro-biologically unsafe or of unknown quality without adequate disinfection before or after the system**

### Inlet feedwater supply:

Must meet EPA and WQA specifications for drinking water.

Maximum Silt Density Index:	3
Maximum free chlorine content:	3 ppm
Minimum inlet pressure:	10 psi
Maximum inlet pressure:	95 psi
Flow requirement:	3.5 gpm (gallons per minute) [13.3 Lpm]
Operating pH range:	4.0 - 11.0
Cleaning pH range:	2.0 - 11.5

### Power supply requirements:

Voltage:	110 - 120 volts AC, 60 Hz
	Single phase with grounded neutral and safety ground (3-wire)
Amps:	15 Amp, (dedicated circuit)
Largest motor:	3/4 Hp (0.75 Hp)
Pump:	Procon rotary vane, 4 gpm, 170 psi.
Maximum system pressure:	170 psi (safety relief on pump)

### Rated output from tank (@ 77°F):

Output pressure:	45-60 psi
Flow @ 115 psi pump pressure:	21-31 gph (593 gal/day, +25%/-15%)
Flow @ 170 psi pump pressure:	37-55 gph (1,050 gal/day +25%/-15%)
Typical; 55°F, 170psi pump pressure, 50psi output =	29 gph (700 gal/day)
System Recovery:	50% nominal (adjustable 25% - 75%)
Salt Rejection:	greater than 90%

### TO-320 Taste & Odor Removal Filter:

Operating temperature:	40-100°F
Design Flow Rate:	6 GPM
Max. working pressure:	100 psi
Chlorine capacity:	60,000 gallons @ 1ppm (typical) (~60 days @ 1,000 gpd) (or ~120 days @ 500 gpd avg.)

### Certifications:



Industrial Control Panel  
E204722

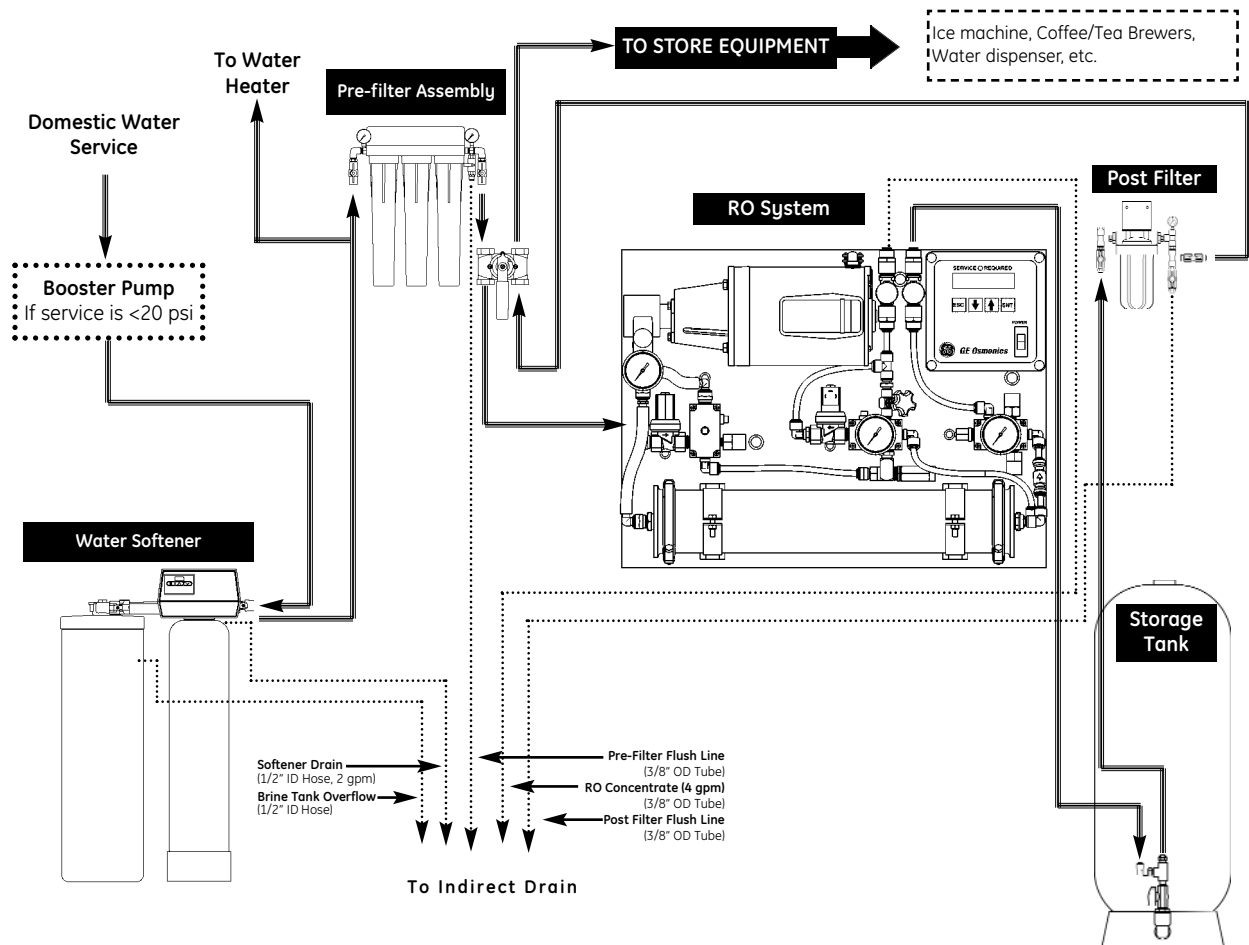
Listed by Underwriter's Laboratories  
for USA and Canada



**WM-800** RO System tested and certified by NSF International  
to ANSI/NSF Standard 58 for the reduction of TDS.

**TO-320** Taste & Odor Removal Filter tested and certified by  
NSF International to ANSI/NSF Standard 42 for the reduction  
of chlorine.

## System Overview



The **Reverse Osmosis (R)** system is comprised of five separate water treatment stages.

### Stage 1: Water Softener

The water softener removes hardness minerals (primarily calcium and magnesium carbonate) from the water and supplies softened water to the water heater and the RO system.

Softened water helps the RO operate more efficiently and protects the water heater from scale.

### Stage 2: Pre-filter Assembly

The pre-filter removes particulate matter and chlorine from the water. The pre-filter helps the RO operate more efficiently, protects the RO membrane element from chlorine damage.

### Stage 3: RO System

The RO system removes virtually all remaining contaminants from the water. In fact, RO water is so pure that minerals must be added back before using for brewing.

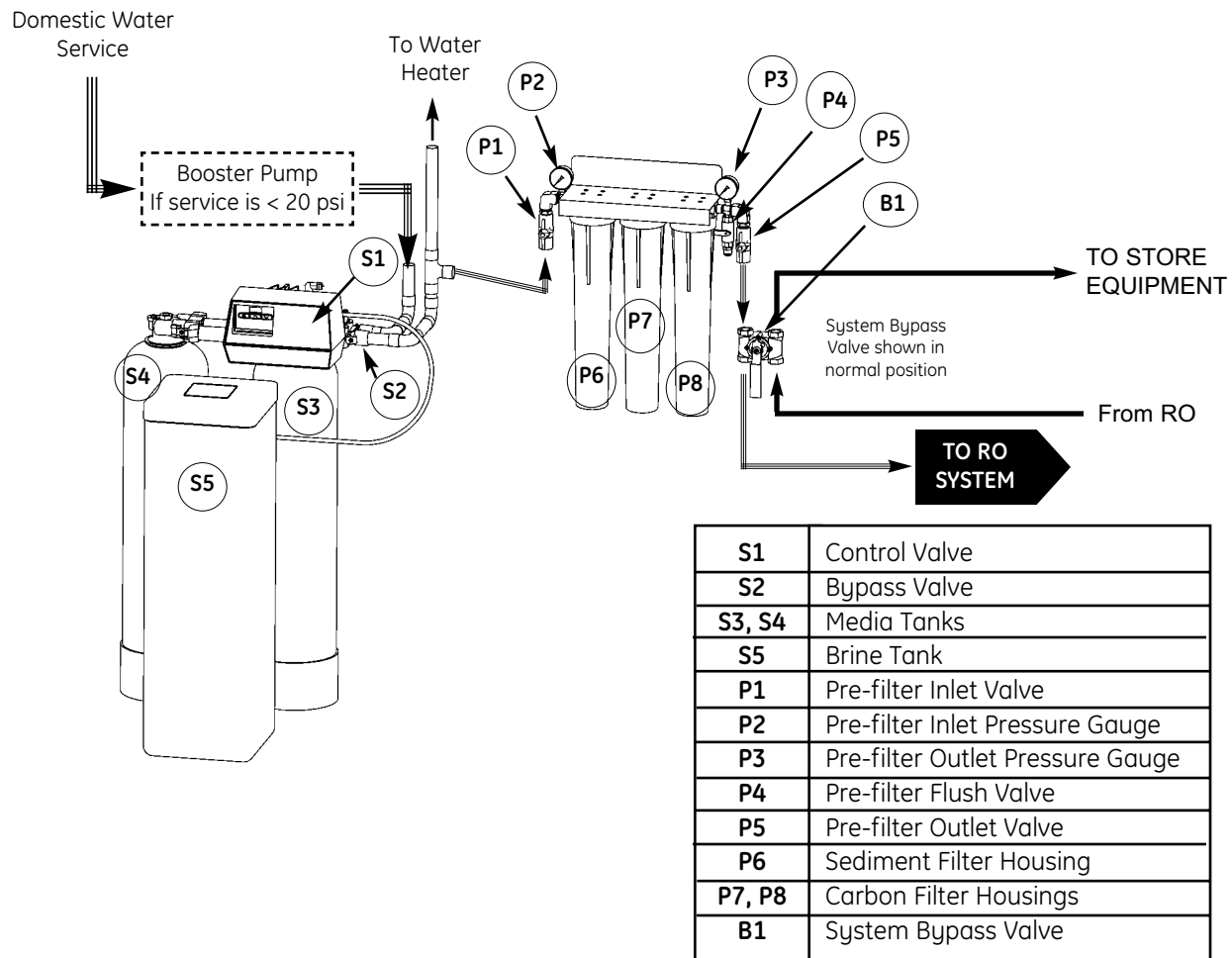
### Step 4: Storage Tank

The storage tank stores the water and pressurizes it for supply to the store. The tank is sealed to preserve the purity of the water.

### Step 5: Post filter

The post filter contains a combination of minerals and activated carbon. As the water flows through the post filter, a small amount of the minerals dissolve into the water, and the carbon absorbs any trace organics, improving the taste.

## Description of Operation: Pretreatment System



### Water Softener

During operation, one of two **media tanks (S3, S4)**, is in service while the other is in standby. Flow through the system is metered by the **control valve (S1)**. The **control valve (S1)** automatically switches tanks and performs regeneration based on the volume of water flow through the softener.

- Domestic water enters the softener **bypass valve (S2)** and flows into the **control valve (S1)**.
- The **control valve** directs the flow to the **media tank** in-service.
- The ion-exchange resin in the **media tank** removes the hardness minerals from the water.
- The softened water flows out of the **media tank** through the **control valve** and **bypass valve** outlet.
- The softener water tees off the **pre-filter** and water heater.

### Pre-Filter

Water flows through three **filter housings (P6 - P8)** plumbed in series.

- Softened water enters the **inlet valve (P1)**, passes the **inlet pressure gauge (P2)** and enters the **sediment filter housing (P6)**. The **sediment filter** removes fine particulate matter from the water.
- The water then flows through each **carbon filter housing (P7, P8)**. The **carbon filters** remove chlorine (and taste) from the water.
- The filtered water flows past the **outlet pressure gauge (P3)** and goes to the **outlet valve (P5)**.
- The **pre-filter** outlet goes to the **system bypass valve (B2)** then out to the RO system.

The **pre-filter flush valve (P4)** is used to relieve pressure from the filters for service and for checking the pressure drop across the filters.



## Description of Operation: RO System

The RO is controlled by a microprocessor based control (R21).

### Starting the RO

- As water is drawn from the **storage tank (T1)**, tank pressure drops.
- When the tank pressure drops below 60 psi, the **tank HI pressure switch (R19)** closes.
- When the tank pressure drops below 45 psi, the **tank LO pressure switch (R17)** closes.
- With both **tank pressure switches** closed, the **RO** starts to run a cycle.
- The **inlet solenoid valve (R5)** opens, allowing the filtered water to flow into the system.
- When the inlet water pressure reaches 8 psi, the normally closed **inlet pressure switch (R7)** opens.
- After a three second delay, the **pump (R1 - R3)** starts.

### Producing RO Water

- The **pump** forces water into the **membrane element housing (R8)**. Pump pressure is indicated on the **pump discharge pressure gauge (R4)**.
- The **membrane element** inside the **membrane element housing** filters the water into two streams: *product* water (pure water) and *concentrate* water (waste water).
- The *concentrate* stream leaves the membrane element and enters the **concentrate manifold (R10)**, where the stream is split and redirected.
  - The **concentrate valve (R13)** controls the flow of water through the **concentrate flow meter (R25)** and out to the **drain**. It controls the amount of waste (*% Recovery*) and purity, and affects system pressure.
  - The **pressure regulator (R12)** controls the flow of concentrate water that is returned to the **pump** inlet, and affects *product* flow.
  - The **concentrate valve** and **pressure regulator valve** together control the **RO** operating pressures shown on the **concentrate pressure gauge (R11)** and **pump pressure gauge (R4)**, and sets the *product* flow.
- The *product* stream leaves the **membrane element** through the center port and passes through the **product check valve (R16)** into the **product manifold (R15)**.
- Product* water quality (TDS) is measured at the **product manifold** by the **conductivity sensor (R14)**.
- Product* water exits the **product manifold**, flows through the **product flow meter (R22)** and out to the **storage tank**.

### Filling the Storage Tank and Stopping the RO

- Tank pressure, shown on the **tank pressure gauge (R18)**, increases as the **storage tank** is filled.
- When the tank pressure reaches 60 psi, the **tank HI pressure switch** opens.
- The **flush solenoid valve (R9)** opens for a 20 second flush of the membrane element.
- The **flush solenoid valve** closes and the **pump** deactivates.
- The **inlet solenoid valve** closes, and the **RO** goes into standby until water is used from the **storage tank** and pressure drops below 45 psi again.

#### Normal Operating Pressures

Pump (R4)	160 - 175 psi
Concentrate (R11)	130 - 160 psi
Product (R18)	45 - 60 psi

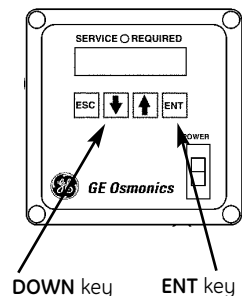
#### Normal Operating Flow Rates

Product Flow	26 - 45 gph
Concentrate Flow	26 - 45 gph

Actual output depends on water temperature and membrane element.

#### To view water temperature:

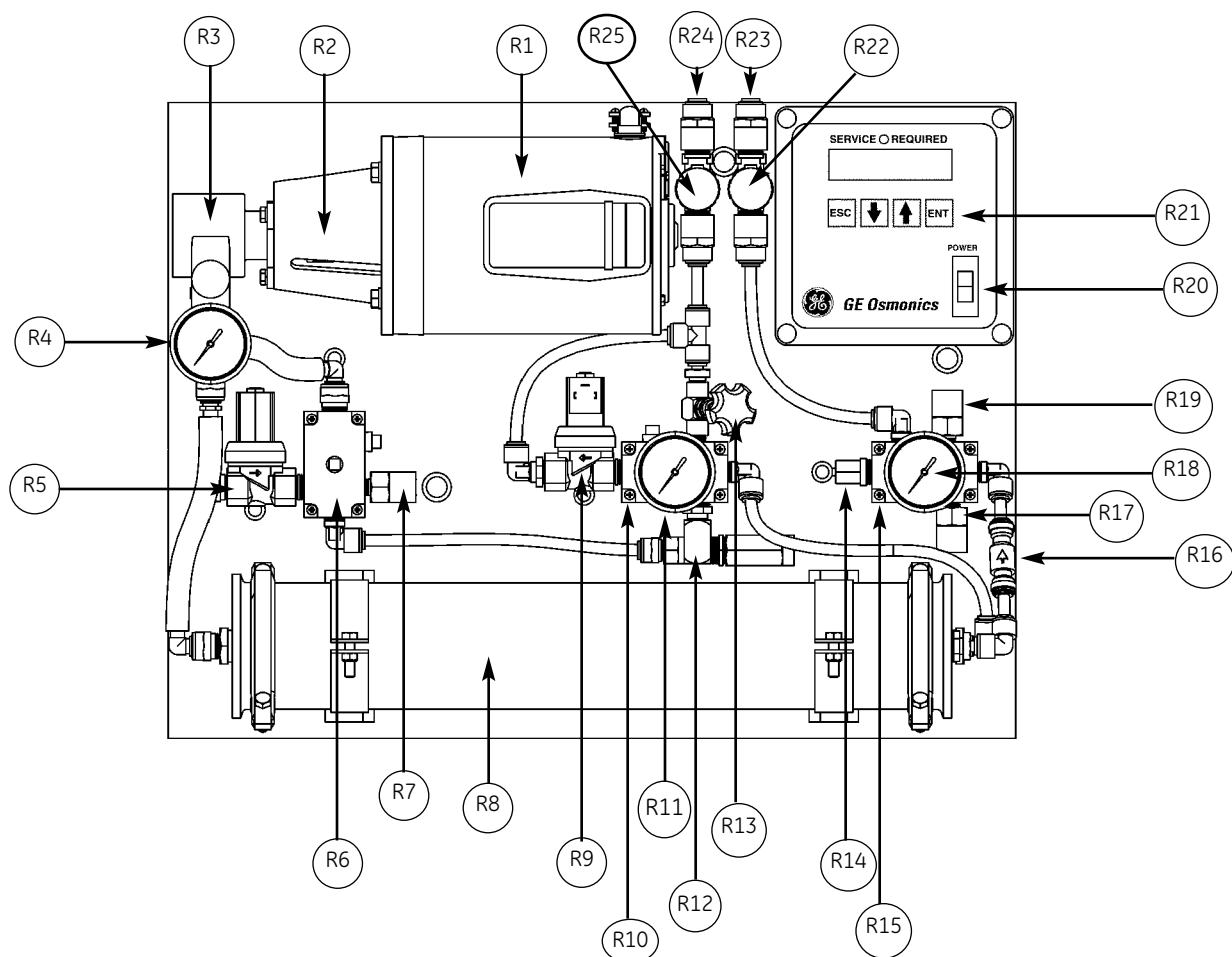
- Press and hold both the **ENT** and **DOWN** arrow keys to enter the *Technician* menu.
- Use the UP or DOWN arrow keys to scroll to the *Product Quality* screen, then press **ENT**.
- Use **UP** or **DOWN** keys to scroll to *Temperature*



Expected product flow for various temperatures, with 170psi pump pressure (R4) and 50psi Tank pressure (R18).

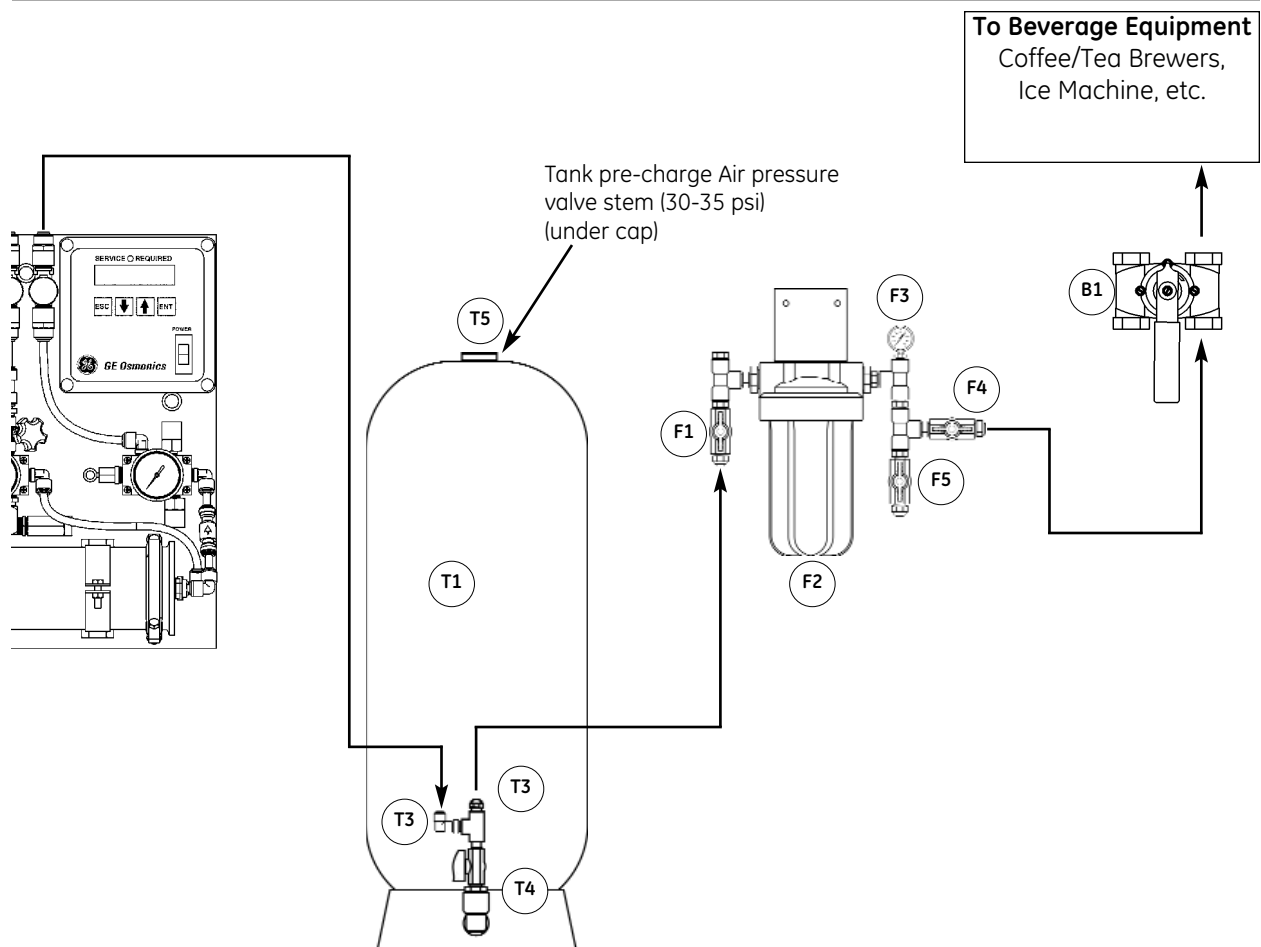
Water Temp °F	Product Flow, %Recovery	Gallons per Day
35°	16.4-24 gph, 27-35.6%	520
45°	20-29.4 gph, 31-40%	635
55°	24.5-36 gph, 36-45%	775
65°	29.7-44 gph, 40-50%	940
77°	37-54.7 gph, 46-55%	1050

**Figure 1: RO Front View With Call-Outs**



Item	Description	Item	Description
<b>R1</b>	Motor	<b>R14</b>	Conductivity Sensor
<b>R2</b>	Motor Adapter & coupling	<b>R15</b>	Product Manifold
<b>R3</b>	Pump	<b>R16</b>	Product Check Valve
<b>R4</b>	Pump Discharge Pressure Gauge	<b>R17</b>	Tank LO Pressure Switch (45 psi)
<b>R5</b>	Inlet Solenoid Valve	<b>R18</b>	Tank Pressure Gauge
<b>R6</b>	Inlet Manifold	<b>R19</b>	Tank HI Pressure Switch (60 psi)
<b>R7</b>	Inlet Pressure Switch	<b>R20</b>	Power Switch
<b>R8</b>	Membrane Element Housing	<b>R21</b>	Controller
<b>R9</b>	Flush Solenoid Valve	<b>R22</b>	Product Flow Meter
<b>R10</b>	Concentrate Manifold	<b>R23</b>	Product Outlet
<b>R11</b>	Operating Pressure Gauge	<b>R24</b>	Concentrate Outlet
<b>R12</b>	Pressure Regulator	<b>R25</b>	Concentrate Flow Meter
<b>R13</b>	Concentrate Valve		

## Description of Operation: Delivery System



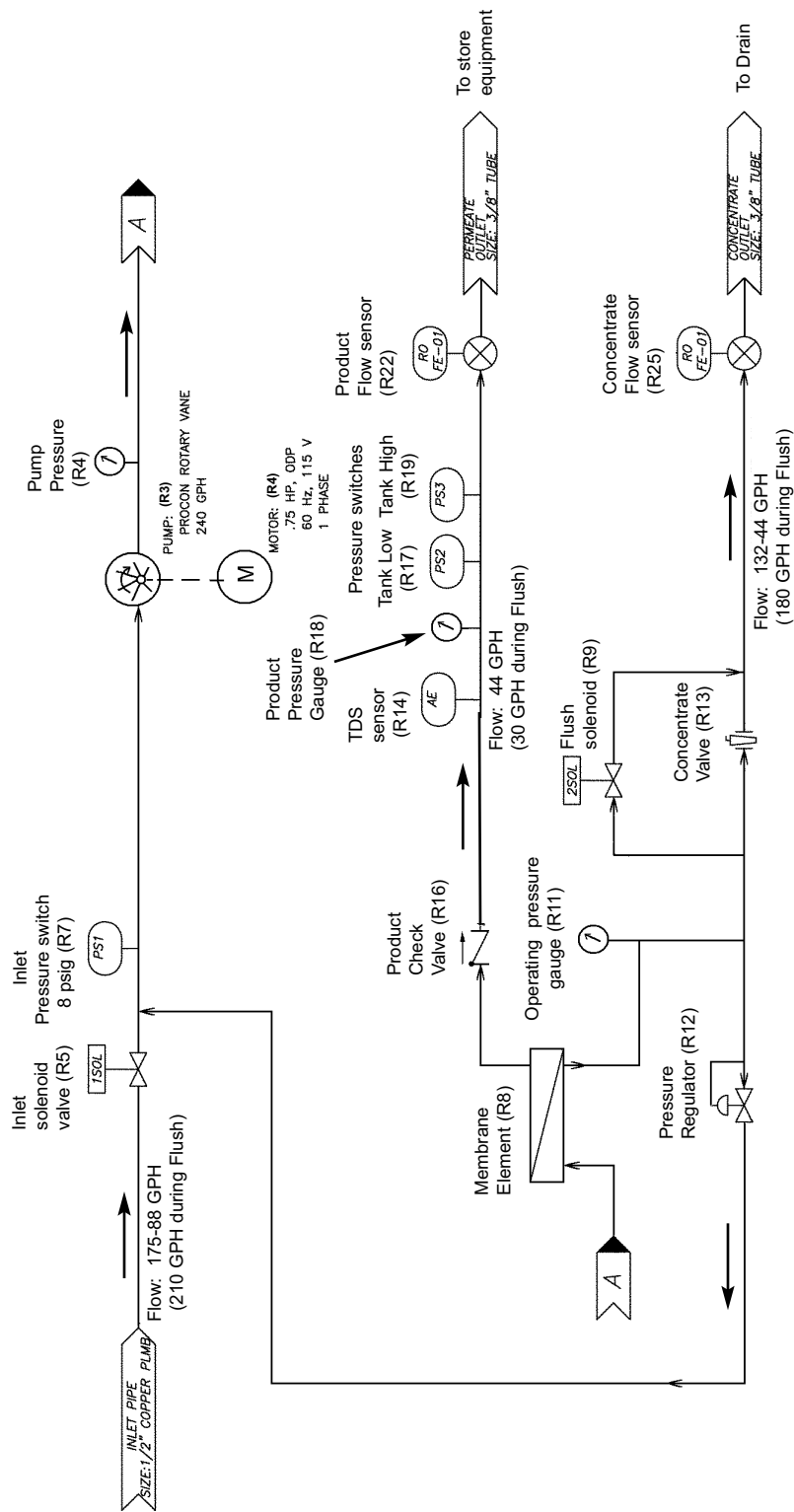
The **storage tank (T1)** has an internal rubber bladder pressurized with air. The tank pressure can be checked and adjusted through the **tank air fitting (T5)**. The tank can be bypassed by closing the **tank isolation valve (T4)**.

- Product water flows from the **RO** into the **tank inlet (T2)**.
- As the **storage tank** fills with water, the bladder is compressed and the tank pressure increases.
- Water flows from the **tank outlet (T3)** to the **post filter inlet valve (F1)**.
- The **remineralization cartridge** inside the **post filter pressure gauge (F2)** adds a small amount of minerals into the water and removes any organics.
- Water passes the **post filter pressure gauge (F3)**, flows out the **post filter valve (F4)** to the **system bypass valve (B1)** and out to the beverage equipment.

The **post filter flush valve (F5)** is used for flushing the **post filter cartridge**, to relieve the line pressure when servicing the **post filter**, and to de-pressurize the **storage tank**.

<b>T1</b>	Storage Tank
<b>T2</b>	Tank Inlet
<b>T3</b>	Tank Outlet
<b>T4</b>	Tank Isolation Valve
<b>T5</b>	Tank Air Fitting
<b>F1</b>	Post Filter Inlet Valve
<b>F2</b>	Post Filter Housing
<b>F3</b>	Post Filter Pressure Gauge
<b>F4</b>	Post Filter Outlet Valve
<b>F5</b>	Post Filter Flush Valve
<b>B1</b>	System Bypass Valve

Figure 2: Piping and Instrumentation Diagram

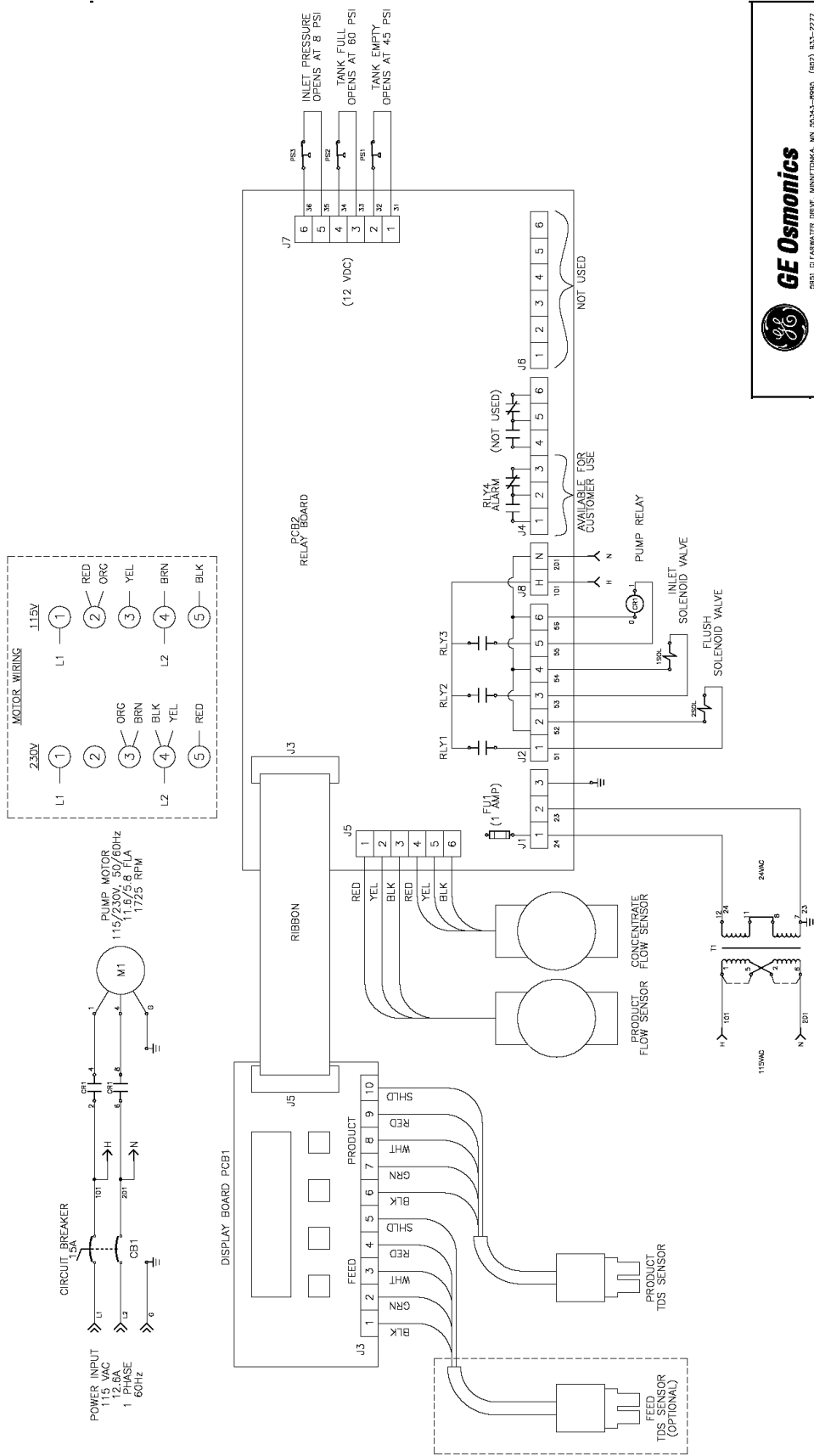



<div><div><div>GE</div><div>Osmonics</div></div><div>GE Water Technologies 5951 CLEARWATER DRIVE, MINNETONKA, MN 55343-8995 (952) 933-2277 WWW.GEWATER.COM</div></div>			
TITLE DWG, P&ID, WM-800 115VAC, 6, LE(PA)			
SIZE B	THIRD ANGLE	DWG NO/PN 1217911	REV B
SCALE NONE	FILE TYPE ACR2004	SHEET 1 OF 1	

NOTES:

1. Flows shown represent 25-50% recovery range, at 77°F
2. Actual flows may vary +25% to -15% depending on membrane.
3. Reference drawing #1154296 for symbol legend.

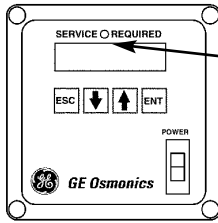
Figure 3: RO Electrical Schematic



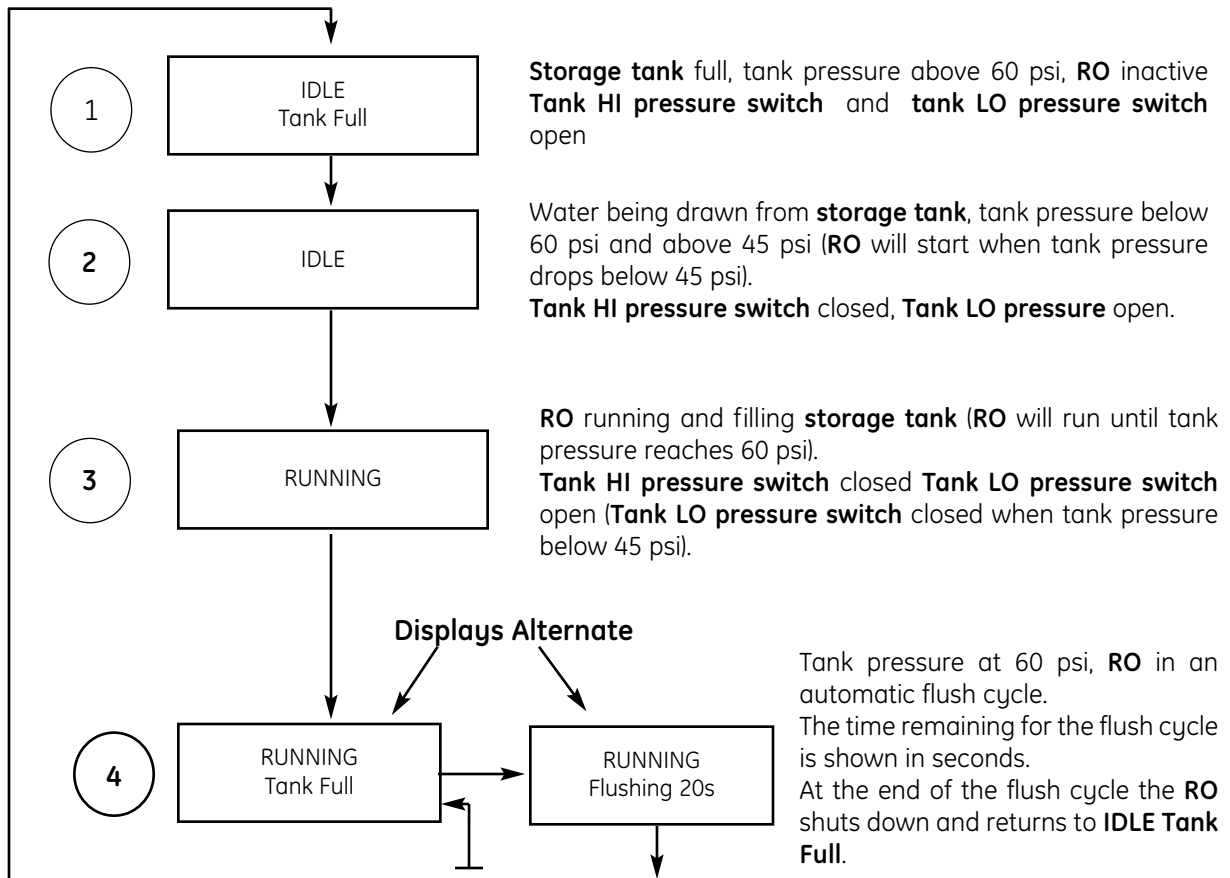
**GE Osmonics**  
5501 CLEARWATER DRIVE, MINNETONKA, MN 55343-8995 (800) 833-2277  
WWW.OSMONICS.COM

TITLE DWG, ELEC-ASSY, BEVWRITE WM-800			
SIZE B	DWG NO/PN 1217924	REV B	FILE TYPE ACR2004
SCALE NONE	SHEET 1 OF 3		

## Controller Displays: Normal Operating Cycle Displays



**SERVICE REQUIRED light OFF**



DOWN ARROW:

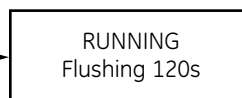


ENTER KEY:



- Press DOWN Arrow key to view Operator Menu
- Hold ENTER and DOWN Arrow keys for 3 seconds to view Technician Menu
- Hold ENTER and ESC keys for 4 seconds to reset the pre-filter timer.

**Alternate Message**



If the RO has run for over 1 hour, a flush cycle will be triggered. Time remaining is shown in seconds. At the end of the flush cycle the RO resumes normal operation.

## Controller Displays: Error Message Displays

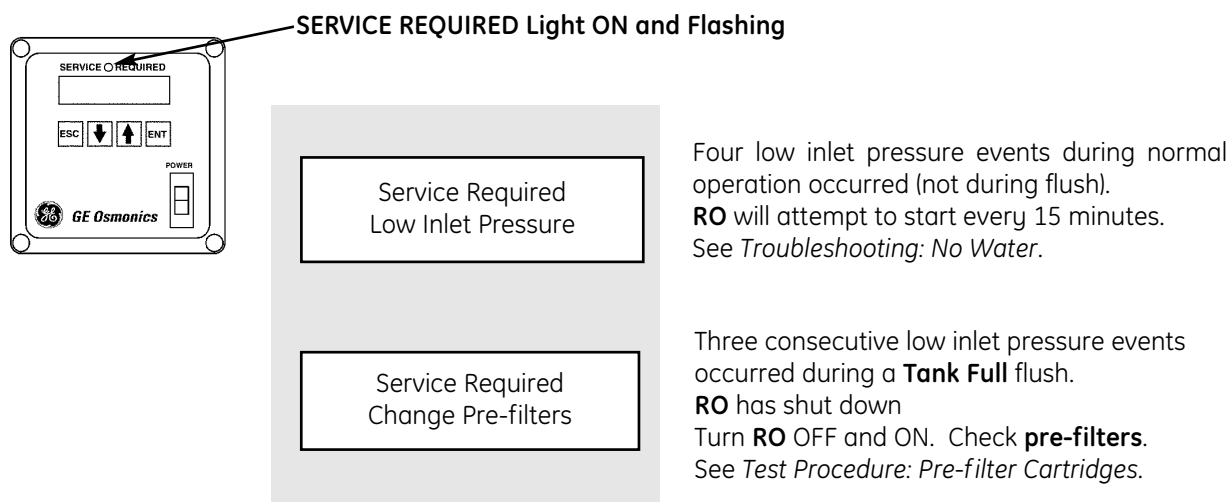
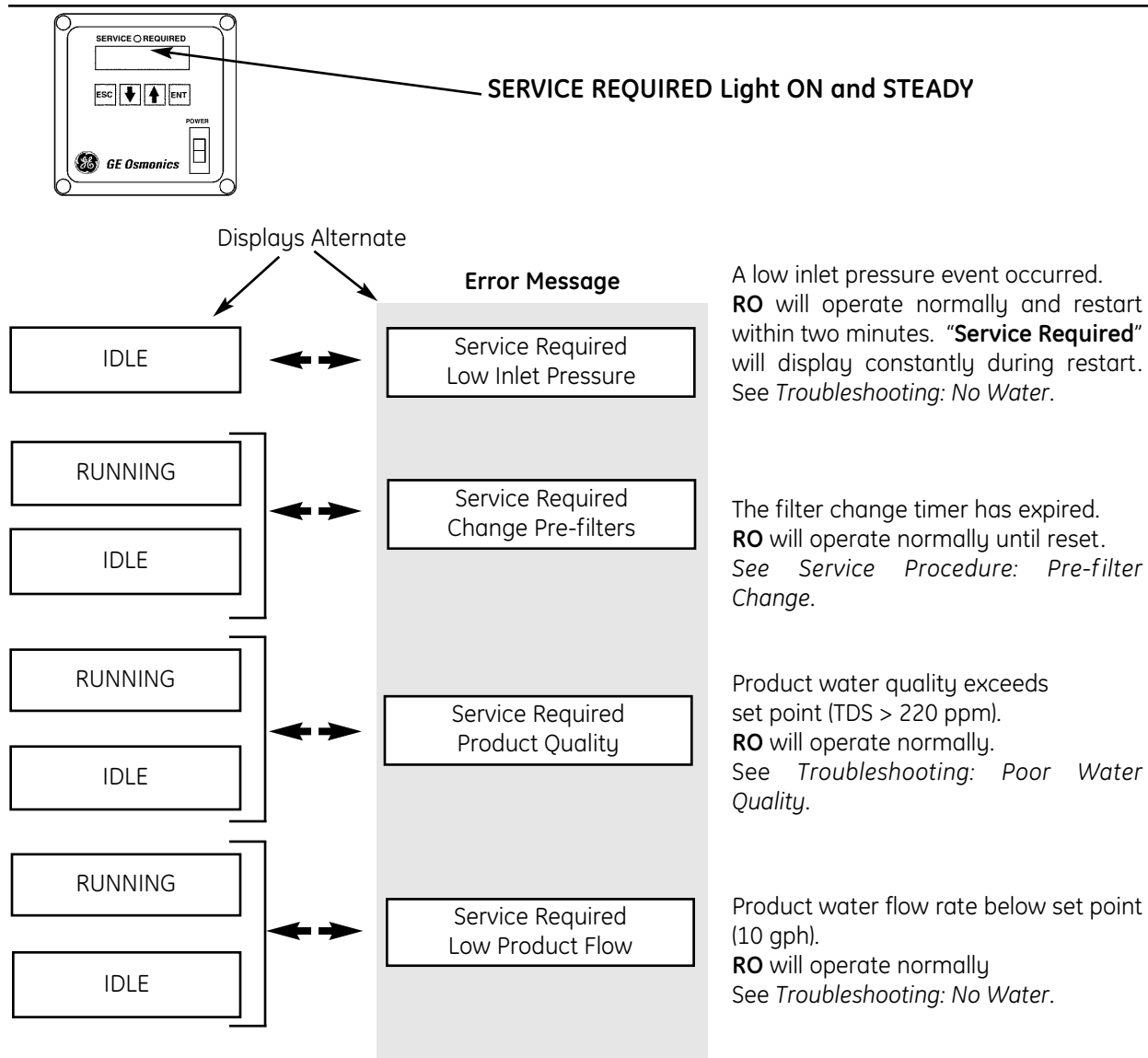
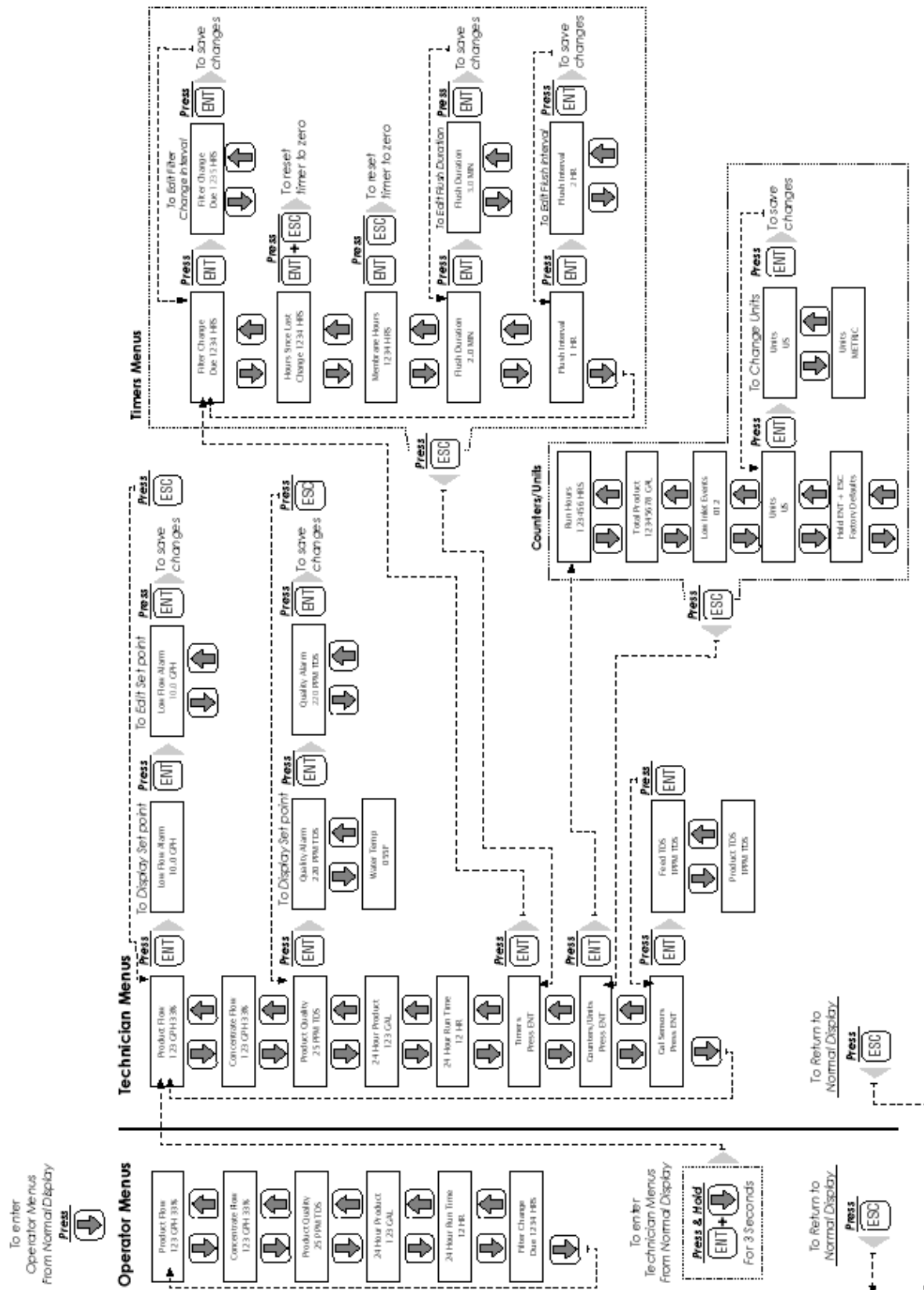


Figure 4: Controller Displays: Operator and Technician Menus





## Startup and System Adjustment:

**Note:** All connected water using equipment must not be used during this procedure.

Install all system components and piping according to the guidelines provided.

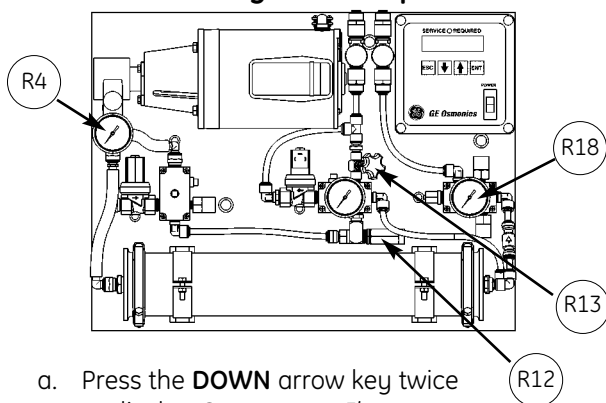
### 1 Preliminary checks

- Check to be sure that the Pre-Filter Flush valve (**P4**) is closed, and the Pre-Filter Inlet and Outlet valves (**P1**) and (**P5**) are both open.
- Place the System Bypass Valve (**B1**) and Softener Bypass valve (**S2**) (if used) into the 'normal' (not bypass) position.
- Check all tubing connections to see that the system is connected properly according to the diagram shown on page #1, and that the drain tubes are secure and directed to an adequate drain.
- Be sure that the Tank Isolation valve (**T4**) is open, and the Post-Filter inlet and outlet valves (**F1** and **F4**) are both open, and that the Post-Filter Flush valve (**F5**) is closed.
- On initial startup, and at least every 6-months, drain the tank fully and check the tank pre-charge Air pressure (**T5**), adjust if necessary to 30-35 psi.
- Check the Pre-Filter pressure gauge (**P3**) for 10-95 psi, if not, make sure that all upstream valves are open, and that the supply piping is correct.
- If the Product Pressure gauge (**R18**) shows more than 45psi, open the Post-Filter Flush valve (**F5**) to drain the Tank until the tank pressure (**R18**) drops below 40 psi.

### 2 Power On

- Connect the **RO** power cord to a dedicated 115vac, 20 amp electrical outlet.
- Turn the **RO** ON with the Power On switch (**R20**).
- Be prepared to shut the **RO** off quickly if the pump makes a loud "grinding" sound.
- The Display should light up and show a brief message, then the Inlet Solenoid will open. After a 3 second delay, the Pump should start and the Display shows 'Running'. (If not, refer to the *Troubleshooting* section.)
- If the pump makes a 'grinding' sound, turn the system OFF for 10-15 seconds, then switch it ON again and watch the Pre-Filter Outlet gauge (**P3**) to see that the feed water pressure remains above 20psi when the Pump comes on. If not, check all upstream piping and equipment for malfunction.
- If the Pre-filter pressure at (**P3**) remains greater than 20psi, the pump may simply be dry, and needs to be turned OFF and ON again for a few seconds several times in order to 'prime' it.
- The pump Pressure gauge (**R4**) should show 100-175psi. If not, see *Test Procedure: Pump and Motor*.

### 3 Set Recovery and Pump Pressure



- Press the **DOWN** arrow key twice to display *Concentrate Flow*.

#### READ STEPS b AND c BEFORE PROCEEDING

- With the **RO** running, adjust the **concentrate valve (R13)** until the Concentrate Flow shows 40-45 gph. Make sure the **pump discharge pressure (R4)\*** remains below 175 psi while adjusting the **concentrate valve (R13)**.
- Adjust the **pressure regulator valve (R12)** until the **pump discharge pressure (R4)** reads 170-175 psi.
- Repeat steps b and c as necessary.

### 4 RO Final Adjustments

- As the **product pressure gauge (R18)** approaches 50 psi, repeat steps 3b and 3c as necessary to maintain a **pump discharge pressure (R4)** of 170 psi and a Concentrate Flow of 40-45 gph.

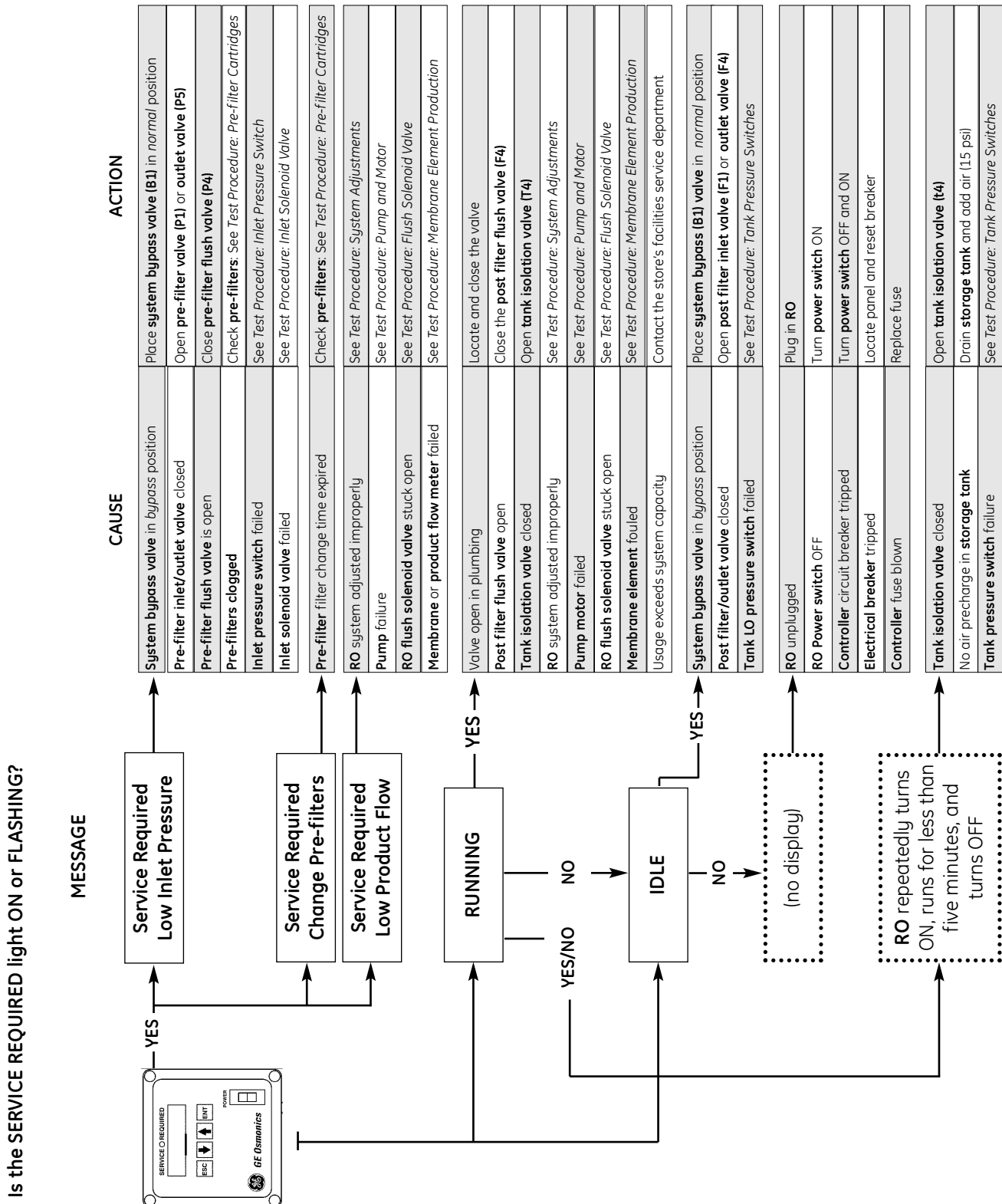
**Troubleshooting:** (see *Troubleshooting* section)

\*Note: The Pump has a built-in safety relief valve which is factory set at 175 psi, so care should be taken to always adjust the Pressure Regulator (**R12**) slightly below 175 psi. When the water becomes colder during winter months, pressures will tend to increase, periodic adjustment may be required.

# Troubleshooting: NO WATER

## Symptoms: No RO water to store, low water pressure

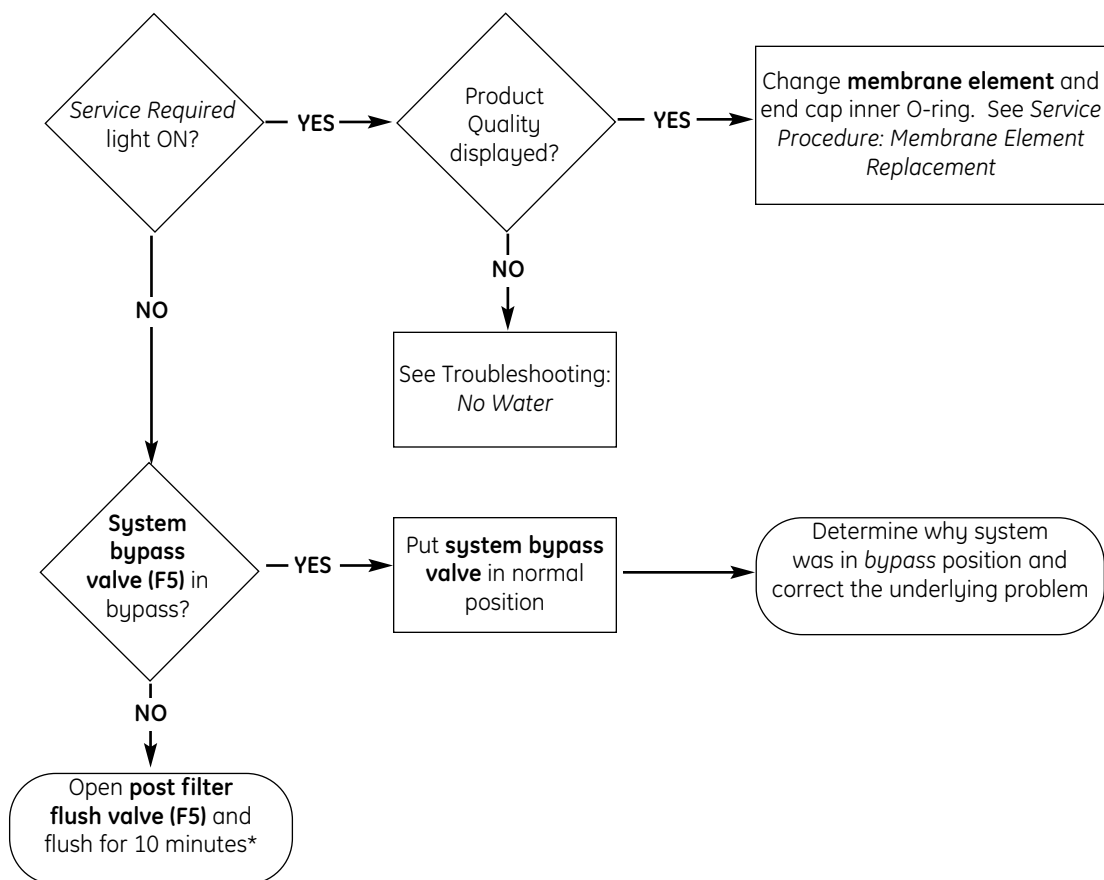
Check **RO controller** first. The SERVICE REQUIRED light and display will indicate the path to take.



## Troubleshooting: Poor Water Quality

**Symptoms:** Product Quality displayed, poor tasting or cloudy water, scale build-up, Equipment failure

Make sure the water softener **brine tank (S5)** is filled with salt and that the **pre-filter** carbon filter cartridges have not expired (see *Test Procedure: Pre-filter Cartridges*). Hard water and/or chlorine will cause premature **membrane element** fouling or damage and affect water quality.



- \* If the **RO** is operating normally and the system is not in bypass, the **post filter** cartridge may need to be purged, or TDS has accumulated in the **storage tank**

Flushing the **post filter** will purge the cartridge and drain off the **storage tank**.

# Troubleshooting: Excessive Water Flow to Drain

This is normally a *perceive* problem rather than an actual issue with the system.

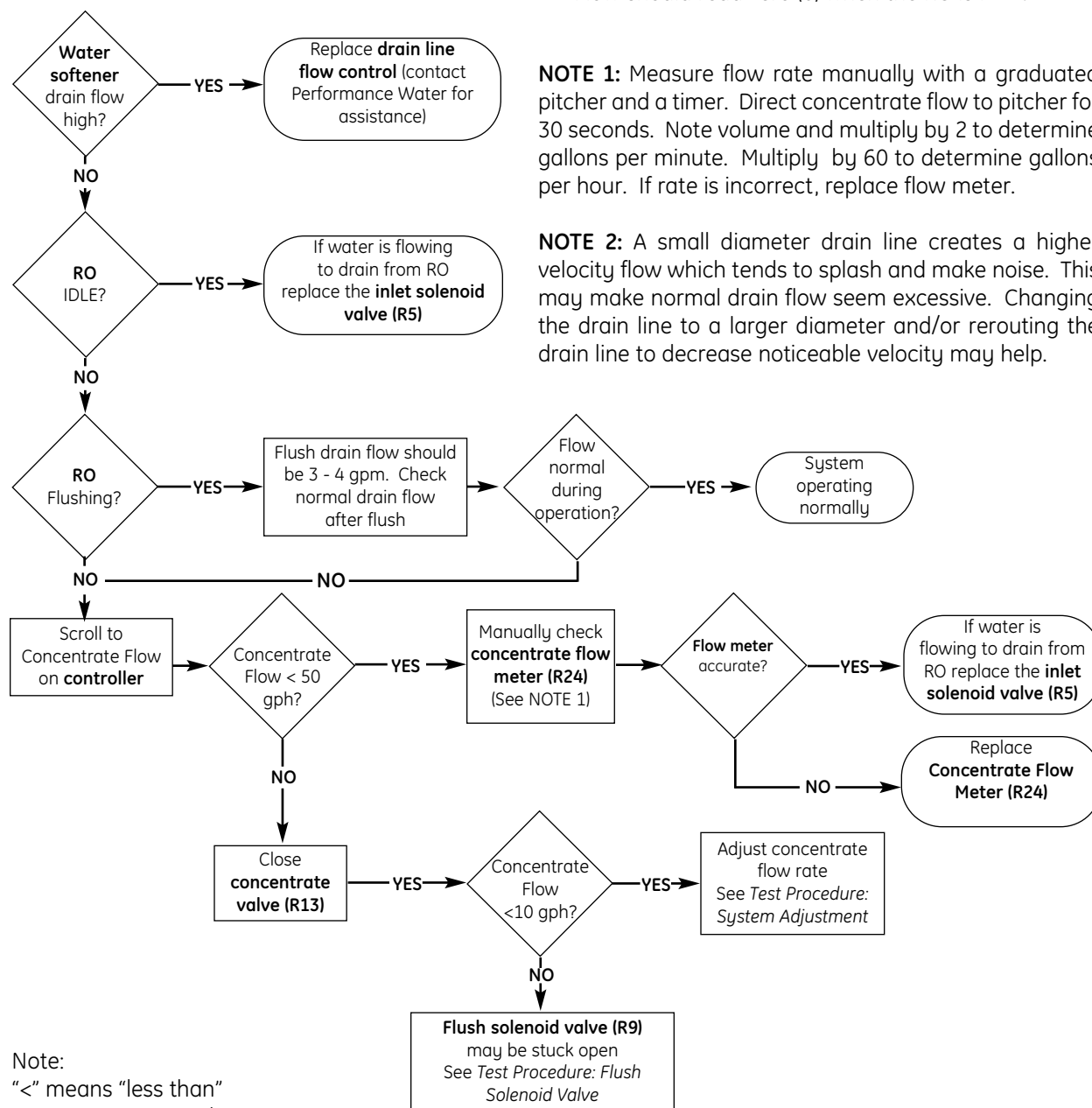
## Troubleshooting

1. Make sure that the **pre-filter flush valve (P4)** and **post filter flush valve (F5)** are both closed.
2. Identify the piece of equipment from which the excessive flow is suspected. Determine if flow rate is correct based on the table at the right listing the component's normal flow rates.

## Equipment Drain Flow Rates\*

	Normal Operation	Flush
<b>Softener</b>	0 gpm	2 gpm
<b>Pre-filter</b>	0 gpm	3 to 4 gpm
<b>RO System</b>	0.3 to 0.8 gpm*	3 to 4 gpm
<b>Post Filter</b>	0 gpm	3 to 4 gpm

\* Flow should read zero (0) when the RO is IDLE.



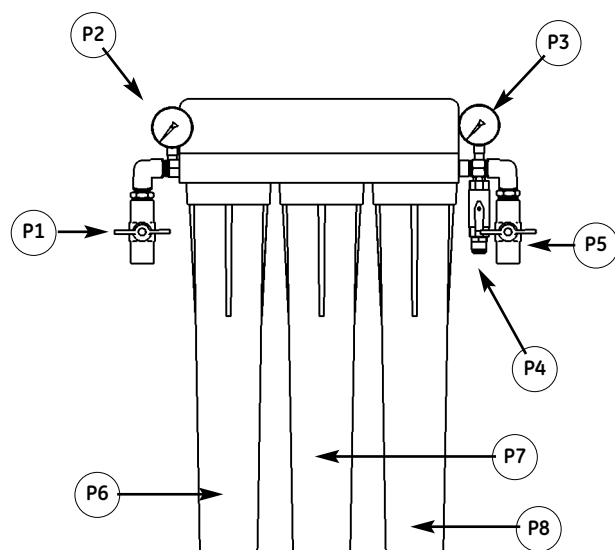
Note:  
 "<" means "less than"  
 ">" means "greater than"

## Troubleshooting: Other

Symptom	Cause	Remedy
RO runs continuously, tank pressure (R18 ) > 60 psi	Tank HI Switch (R19) or controller	See Test Procedure: Tank Pressure Switches
RO shows Full Tank immediately on start-up	Tank HI Switch (R19) or controller	See Test Procedure: Tank Pressure Switches
RO runs five minutes or less to Tank Full , tank pressure (R18) = 55 - 65 psi	Tank LO Switch (R17) or controller	See Test Procedure: Tank Pressure Switches
Pump discharge pressure (R4) cannot be adjusted below 175 psi	Inlet pressure > 90 psi	Install a pressure reducing valve in supply line to reduce feed pressure to 60 psi
	Pressure regulator valve	Replace Pressure regulator valve (R12)
	Concentrate valve (R13) closed	Adjust Concentrate valve (R13) to 45 gph See Startup and System Adjustment
Pump discharge pressure (R4) cannot be adjusted above 150 psi or "Low Product Flow" display	Flush valve (R9) open	See Test Procedure: Flush Solenoid Valve
	Pressure regulator valve	Replace Pressure regulator valve (R12)
	Pump or Motor	See Test Procedure: Pump and Motor
	Faulty Concentrate Flow Sensor	Replace Concentrate Flow Sensor (R25)
	Concentrate valve (R13) aperture too large	Replace concentrate valve (R13)
RO runs only 5-10 minutes to Tank Full, tank pressure (R18) 45 to 60 psi	Low air precharge in storage tank	Drain storage tank and adjust air precharge to 30-35 psi.
	Tank valve (T4) closed	Open the Tank valve (T4)
When water is drawn from storage tank, tank pressure drops rapidly to zero from 40 psi or higher.	Excessive air precharge in storage tank	Drain storage tank and adjust air precharge to 30-35 psi.
Storage tank empty at 40 psi or higher		
Concentrate Flow rate < 10 gph, Product Flow % > 50%	System adjusted improperly	See Startup and System Adjustment
	Flush valve (R9) open	See Test Procedure: Flush Solenoid Valve
	Concentrate flow sensor (R25)	Replace concentrate flow meter
Water flows to drain during RO IDLE	Inlet solenoid valve (R5)	Replace inlet solenoid valve
	Product check valve (R16)	Replace product check valve

## Test Procedure: Pre-filter Cartridges

The pre-filter cartridges should be replaced at least every three (3) months to maintain peak performance. The filters may clog in less than three months. To test pre-filter cartridge performance, the pressure differential between the **inlet pressure gauge (P2)** and the **outlet pressure gauge (P3)** is evaluated. This procedure should be performed at least once a week.



- Direct the **flush valve (P4)** line to drain.
- Close the **outlet valve (P5)**.
- Open the **flush valve (P4)**. See NOTE.
- Note the readings on the **inlet pressure gauge (P2)** and the **outlet pressure gauge (P3)**.
- If the difference between the readings is less than 20 psi, the filter cartridges are operating normally.
- If the difference between the readings is 20 psi or more, change the **sediment cartridges (P7, P8)** (see *Service Procedure: Pre-filter Cartridge Replacement*).
- Repeat steps c and d.
- If the difference between the readings is still 20 psi or more, change **both carbon cartridges (P7, P8)** (see *Service: Pre-filter Cartridge Replacement*).

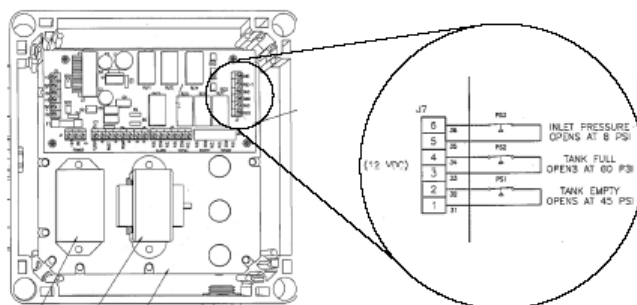
Legend	
<b>P1</b>	Inlet Valve
<b>P2</b>	Inlet Pressure Gauge
<b>P3</b>	Outlet Pressure Gauge
<b>P4</b>	Flush Valve
<b>P5</b>	Outlet Valve
<b>P6</b>	Sediment Cartridge
<b>P7</b>	Carbon Cartridges
<b>P8</b>	Carbon Cartridges

### NOTE:

The flow rate out of the **flush valve (P4)** exceeds 4 - 5 gpm, results may be skewed. Adjust the valve to regulate the flow rate to 4 - 5 gpm.

## Summary: Inlet and Tank Pressure Switches

### Pressure Switch Connection Detail



Inlet Pressure Switch (R7)	Pre-filter Outlet Pressure (P3)	Result
Switch Closed	0 - 8 psi	RO will not run, low inlet pressure
Switch Open	> 8 psi	RO runs
Switch Shorted	-	RO will not run, <b>Low Inlet Pressure</b> displayed
Switch Broken or Disconnected	-	RO runs normal, no low pressure protection

Tank HI Pressure Switch (R18)	Tank Pressure (R18)	Result
Switch Open	> 60 psi	<b>Storage tank full, RO Stops</b>
Switch Closed	< 60 psi	RO IDLE or RUNNING
Switch Shorted (closed)	> 60 psi	RO will not turn OFF
Switch Broken or Disconnected	-?-	Tank Full message at start-up, RO turns ON/OFF based on <b>tank LO pressure switch</b> (45 psi)

Tank LO Switch (R17)	Tank Pressure (R18)	Result
Switch Open	> 45 psi	RO IDLE or RUNNING
Switch Closed	< 45 psi	RO starts
Switch Broken or Disconnected	-	RO will not start, - IDLE (Tank pressure < 45 psi)
Switch Shorted (closed)	-	RO turns ON/OFF based on <b>Tank Hi pressure switch</b> (56 - 62 psi)

Switch State Table

Condition	Tank Pressure (R18)	Tank HI (R19)	Tank LO (R17)
Tank Full	> 60 psi	OPEN	OPEN
IDLE	45 - 56 psi	CLOSED	OPEN
RO start-up	< 45 psi	CLOSED	CLOSED
<b>RUNNING</b>	46 - 60 psi	CLOSED	OPEN

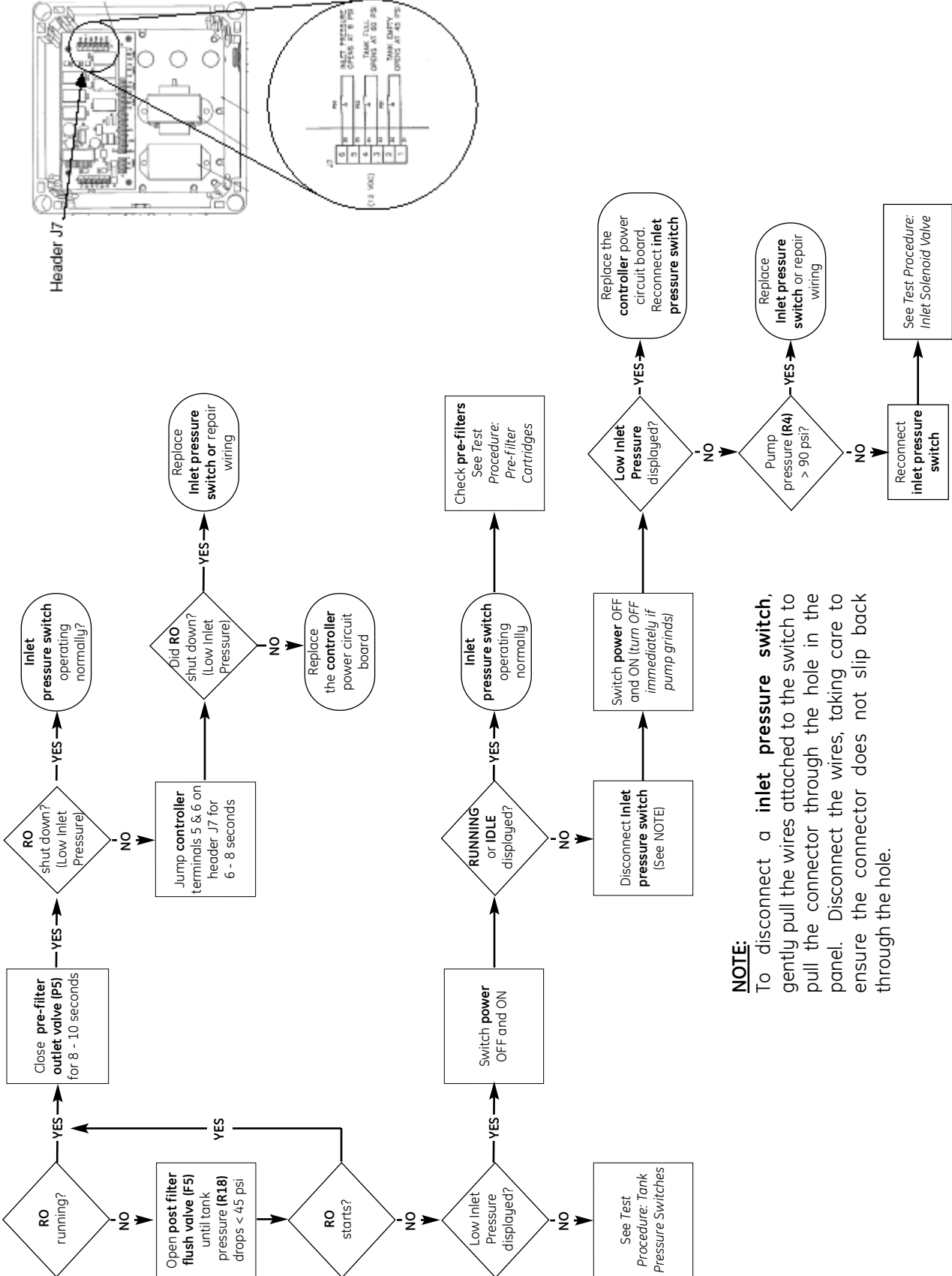
Note:

"<" means "less than"

">" means "greater than"

Test Procedure: Inlet Pressure Switch

The inlet pressure switch protects the pump from running dry. When pressure is less than 8 psi, the switch closes, removing power to the pump and inlet solenoid valve. Before testing, ensure that the system bypass valve (B1) is in normal position, the pre-filter inlet (P1) and outlet(P5) valves are open and that the pre-filter outlet pressure gauge (P3) reads > 20 psi when the RO is running.



**NOTE:**  
To disconnect a inlet pressure switch, gently pull the wires attached to the switch to pull the connector through the hole in the panel. Disconnect the wires, taking care to ensure the connector does not slip back through the hole.



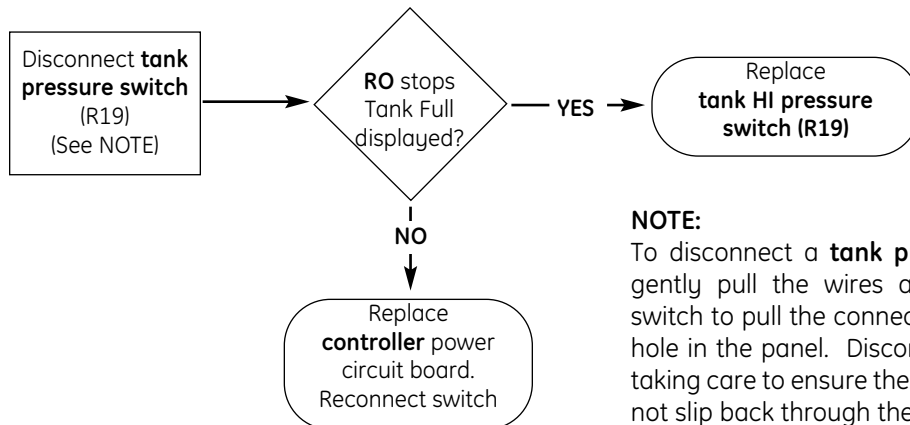
## Test Procedure: Tank Pressure Switches (page 1 of 3)

Before Testing, ensure that the **system bypass valve (B1)** is in the *normal* position, the **pre-filter inlet (P1)** and **outlet valves (P5)** are open and that the **pre-filter outlet pressure gauge (P3)** reads > 20 psi when the **RO** is running.

### Test Procedure

1. Close **tank isolation valve (T2)** to bypass **storage tank**.
2. Open the **post filter flush valve (F5)**.
3. Observe **tank pressure gauge (R18)**. **Tank pressure switches** are operating normally if **RO** starts when tank pressure drops below 55 psi and **RO** stops when tank pressure exceeds 55 psi.
4. See Troubleshooting steps if **RO** does not start and stop correctly.

### Troubleshooting: RO does not stop, tank pressure (R18) greater than 55 psi



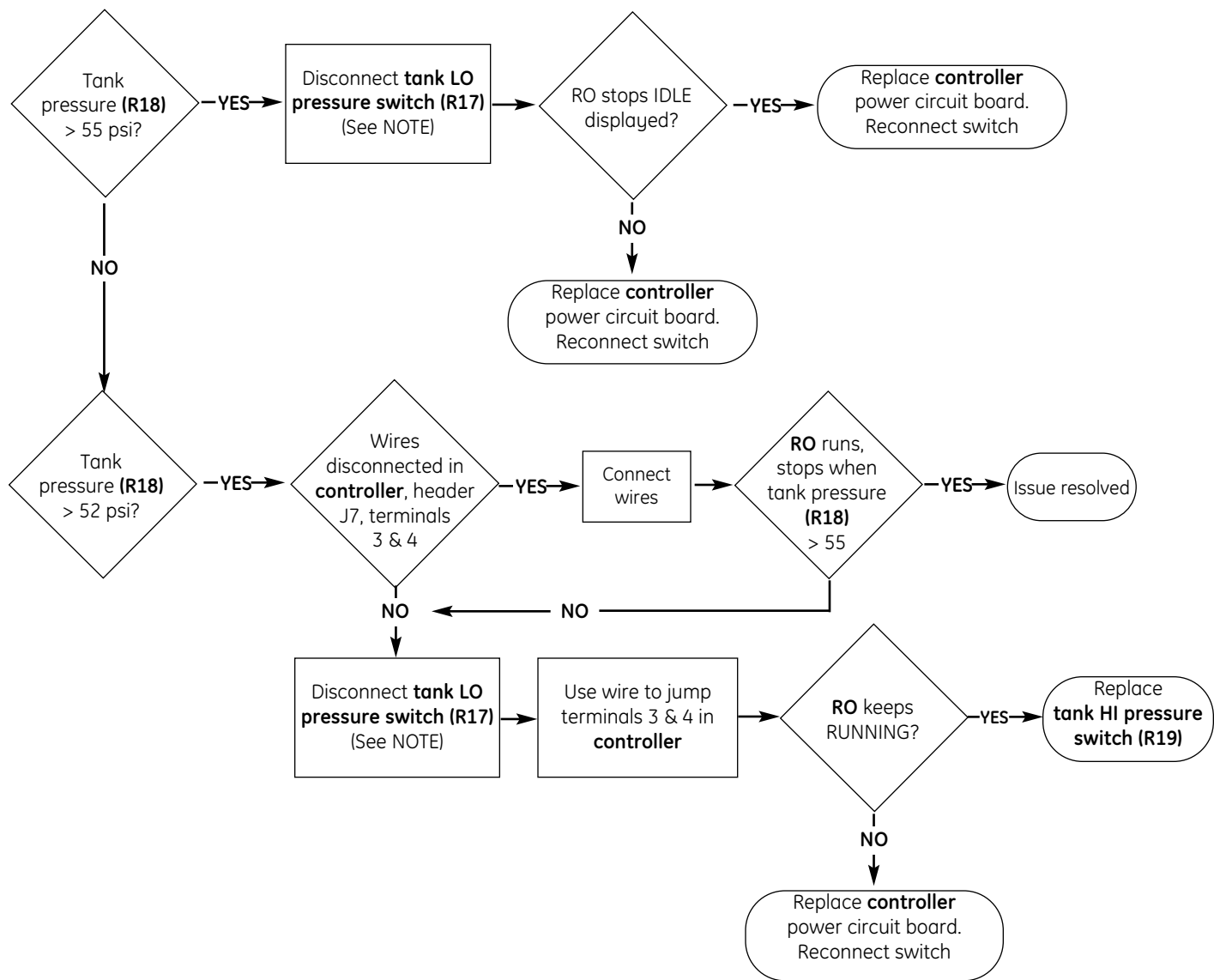
#### NOTE:

To disconnect a **tank pressure switch**, gently pull the wires attached to the switch to pull the connector through the hole in the panel. Disconnect the wires, taking care to ensure the connector does not slip back through the hole.

## Test Procedure: Tank Pressure Switches (page 2 of 3)

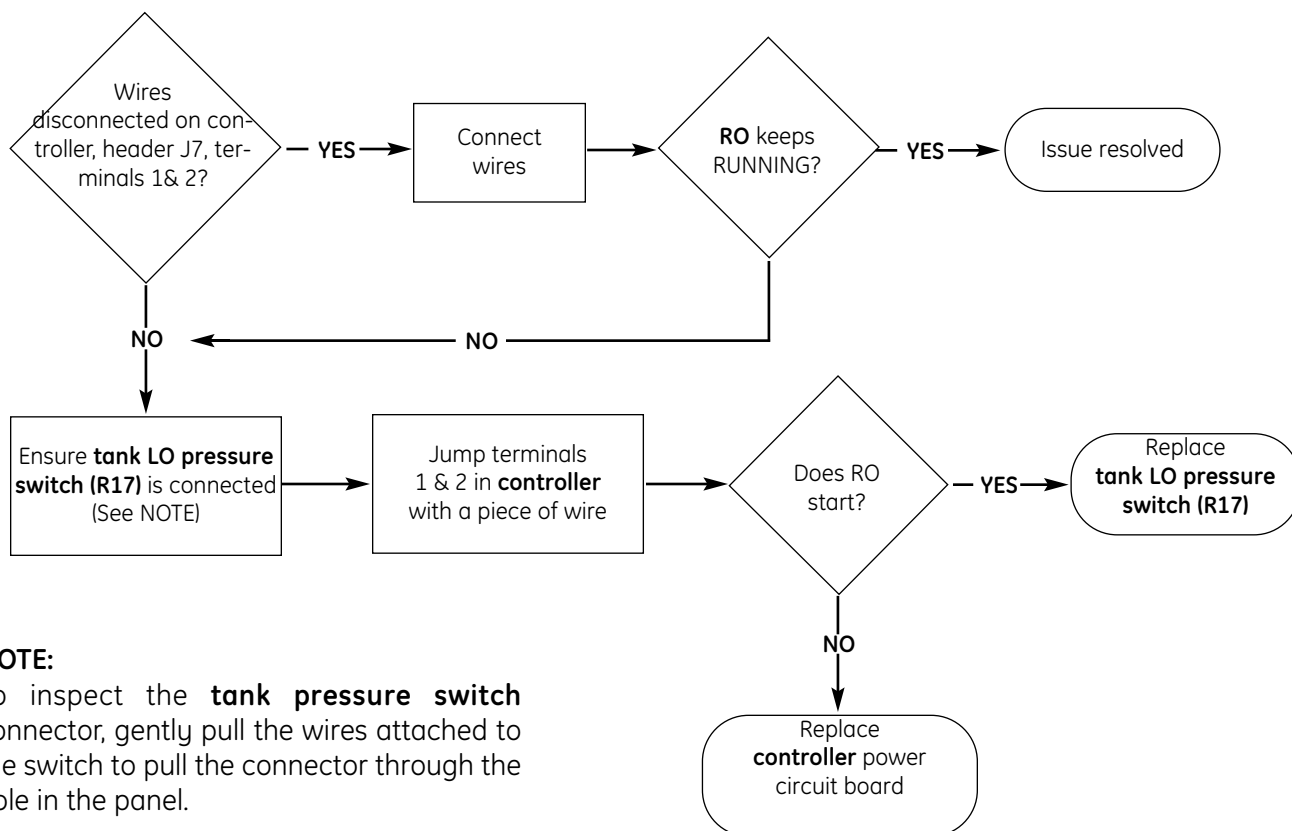
### Troubleshooting: RO starts and stops repeatedly

**NOTE:** Make sure all valves are in normal operating positions.



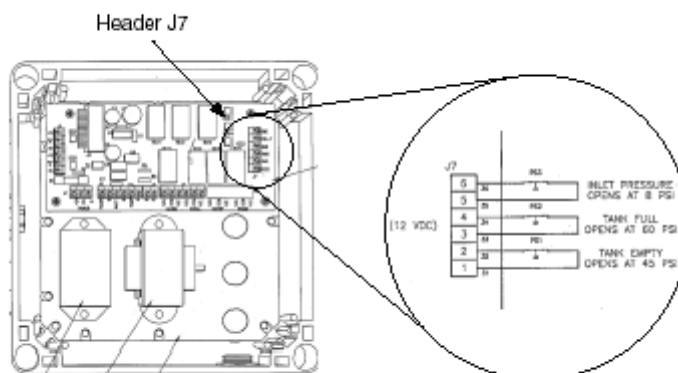
## Test Procedure: Tank Pressure Switches (page 3 of 3)

Troubleshooting: RO does not start, tank pressure (R18) less than 45 psi



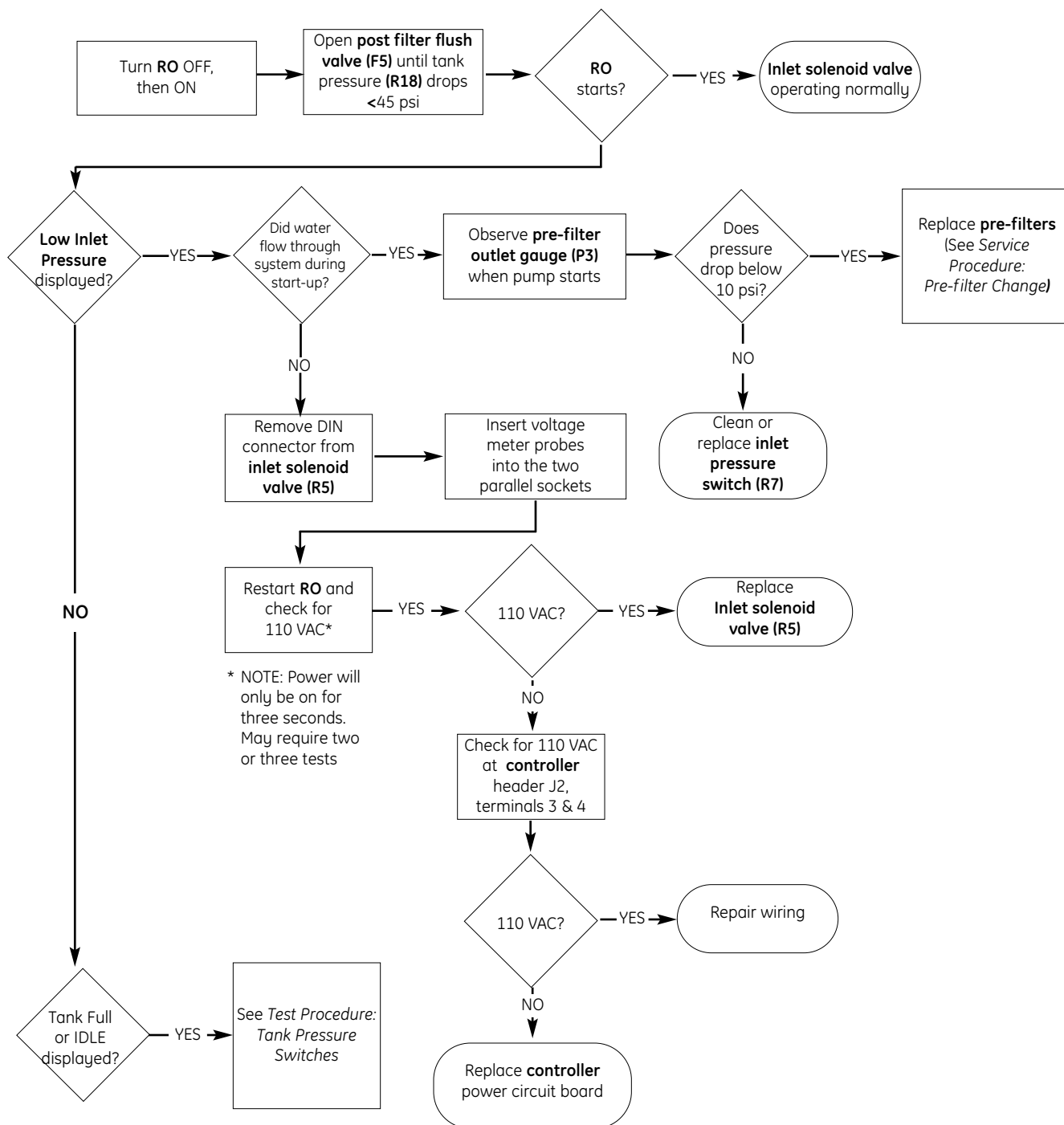
### NOTE:

To inspect the **tank pressure switch** connector, gently pull the wires attached to the switch to pull the connector through the hole in the panel.



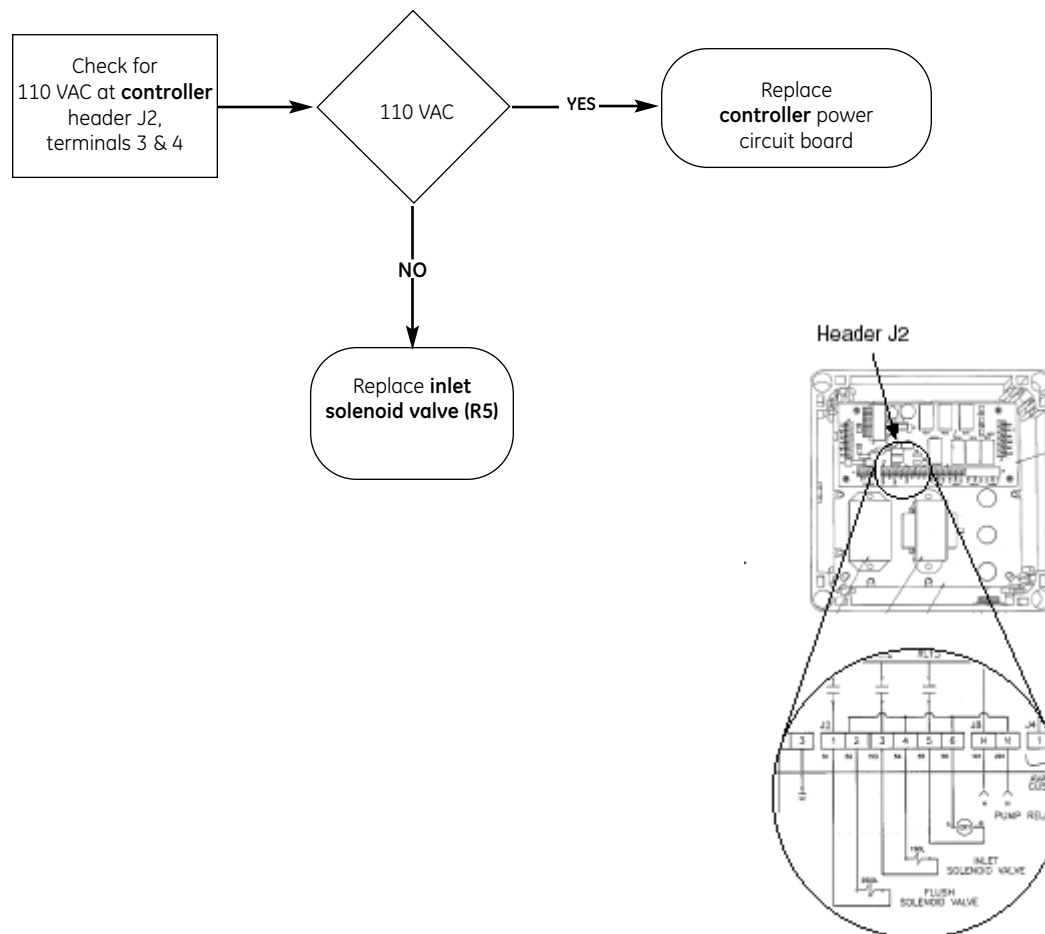
## Test Procedure: Inlet Solenoid Valve (Page 1 of 2)

Ensure that **system bypass valve (B1)** is in the *normal* position, the **pre-filter inlet (I1)** and **outlet (P5) valves** are open and that the **pre-filter outlet pressure gauge (P3)** reads > 20 psi when the RO is running. **Low Inlet Pressure** is displayed on controller



## Test Procedure: Inlet Solenoid Valve (Page 2 of 2)

### Troubleshooting: RO drains while IDLE



## Test Procedure: Flush Solenoid Valve

In normal operation, when the **tank HI pressure switch (R18)** reaches 60 psi, the **flush solenoid valve (R9)** will open for 20 seconds, performing a flush of the **membrane element**.

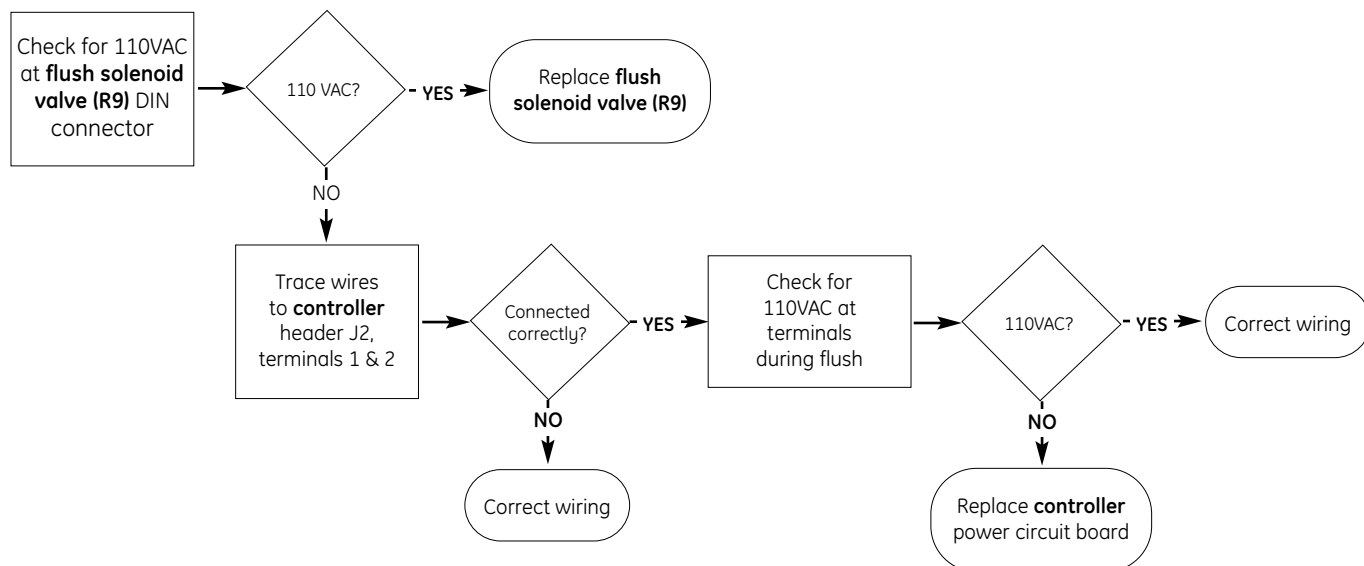
If the **flush solenoid valve** does not open, it probably will not be noticed in normal operation. However, over time this will shorten the **membrane element** life if not corrected.

If the valve does not close, the system drain flow rate will be higher than normal and it will be impossible to properly adjust the system.

### Determining if the flush solenoid valve is opening

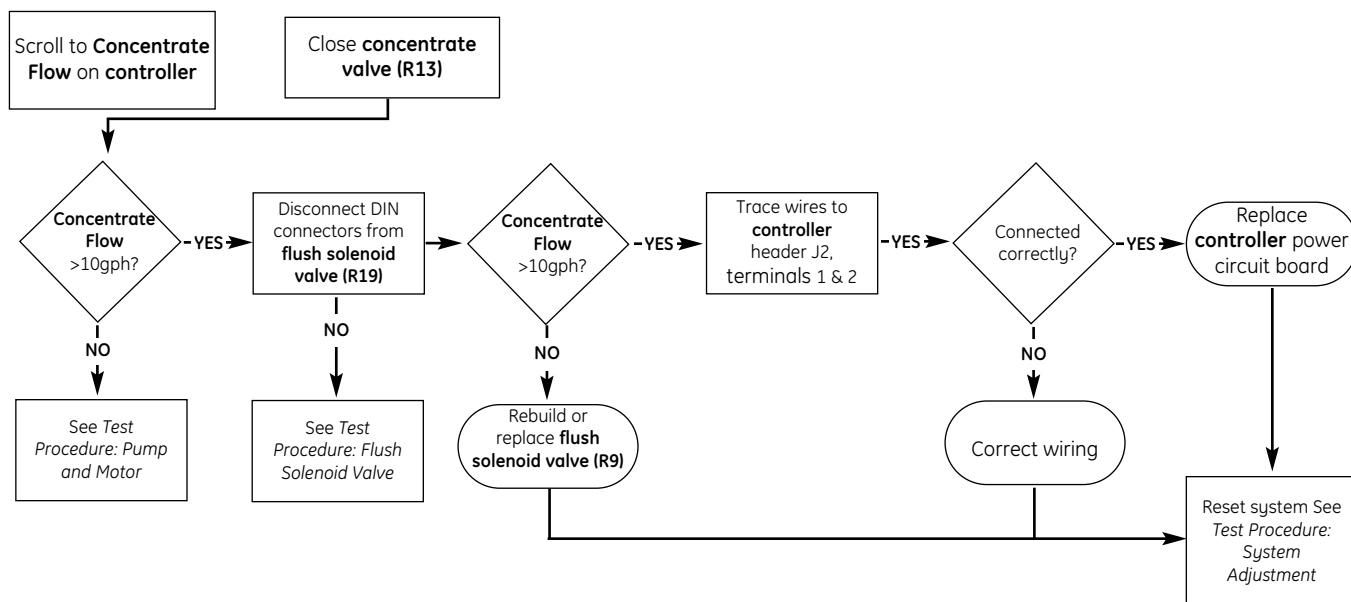
After a normal run cycle when the pressure reaches 60 psi, the **RO** goes into flush mode. The **controller** will display **Flushing**. Scroll to the **Concentrate Flow** screen. The flow should increase to approximately 160 gph.

If the **Concentrate Flow** screen does not increase to 160 gph, follow the steps below.



### Troubleshooting: Cannot adjust pump pressure (R4) above 100 psi

Make sure RO is not Flushing before proceeding with troubleshooting



## Test Procedure: Pump and Motor (page 1 of 3)

### Caution

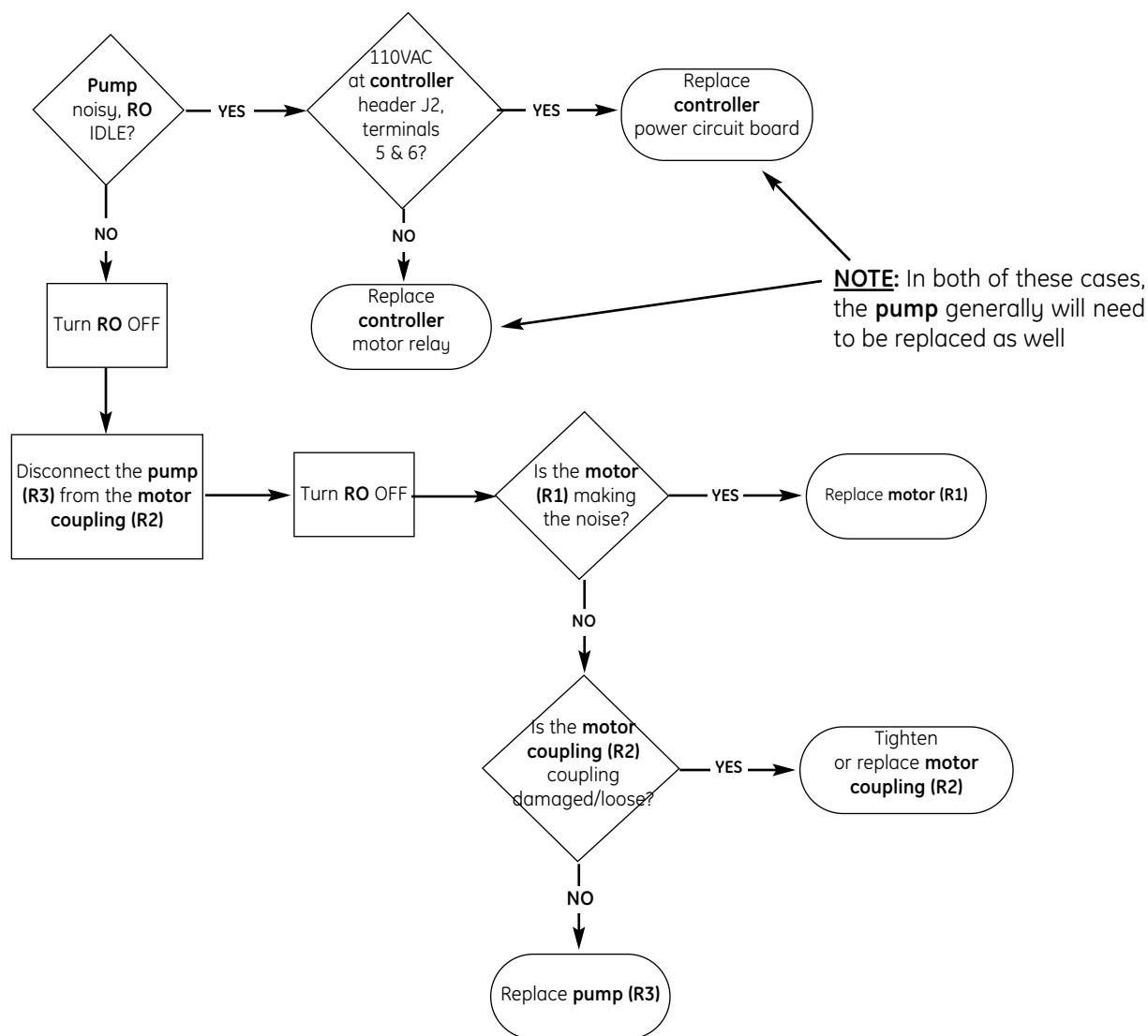
Do not allow the **pump** to run dry as this will damage it (See *Test Procedure: Inlet Pressure Switch*).

Replace the **pump** if it is leaking.

Do not tamper with the Safety Relief valve on the side of the **pump**.

### Troubleshooting: Excessive Pump Noise

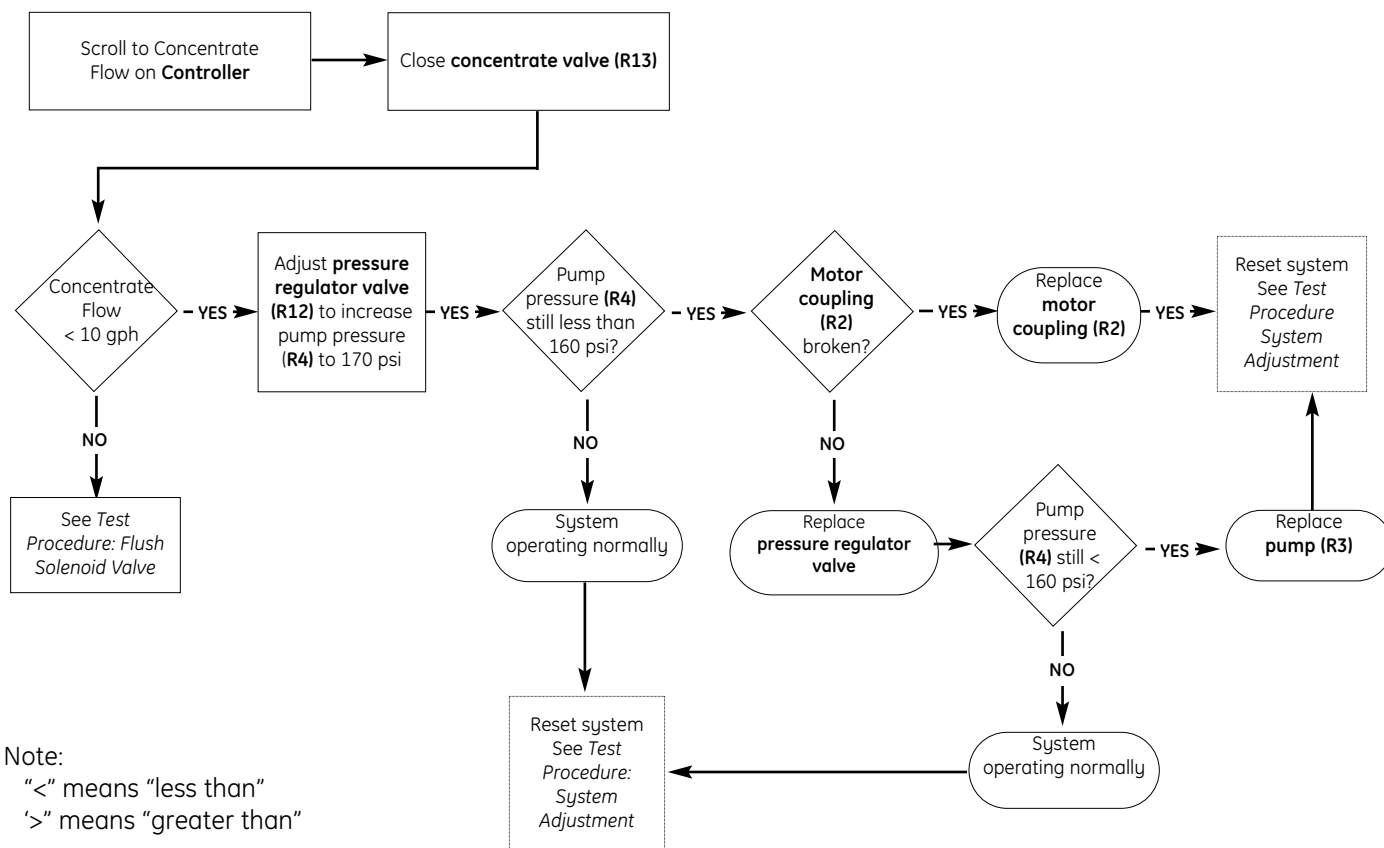
Test the **pump** if it is making a squealing or grinding sound. NOTE: the **pump** will grind momentarily sometimes on start-up.



## Test Procedure: Pump and Motor (page 2 of 3)

### Troubleshooting: cannot adjust pump pressure (R3) above 100 psi.

If RO is not RUNNING, open the **post filter flush valve (F5)** until RO starts.



### Troubleshooting: cannot reduce pump pressure (R4) below 170 psi.

Check the Inlet pressure gauge (P3). Pressure should be less than 90 psi.

If greater than 90 psi, install a pressure reduction valve in the supply line before the Water Softener.

If less than 90 psi, replace the Pressure Regulator valve (R12).

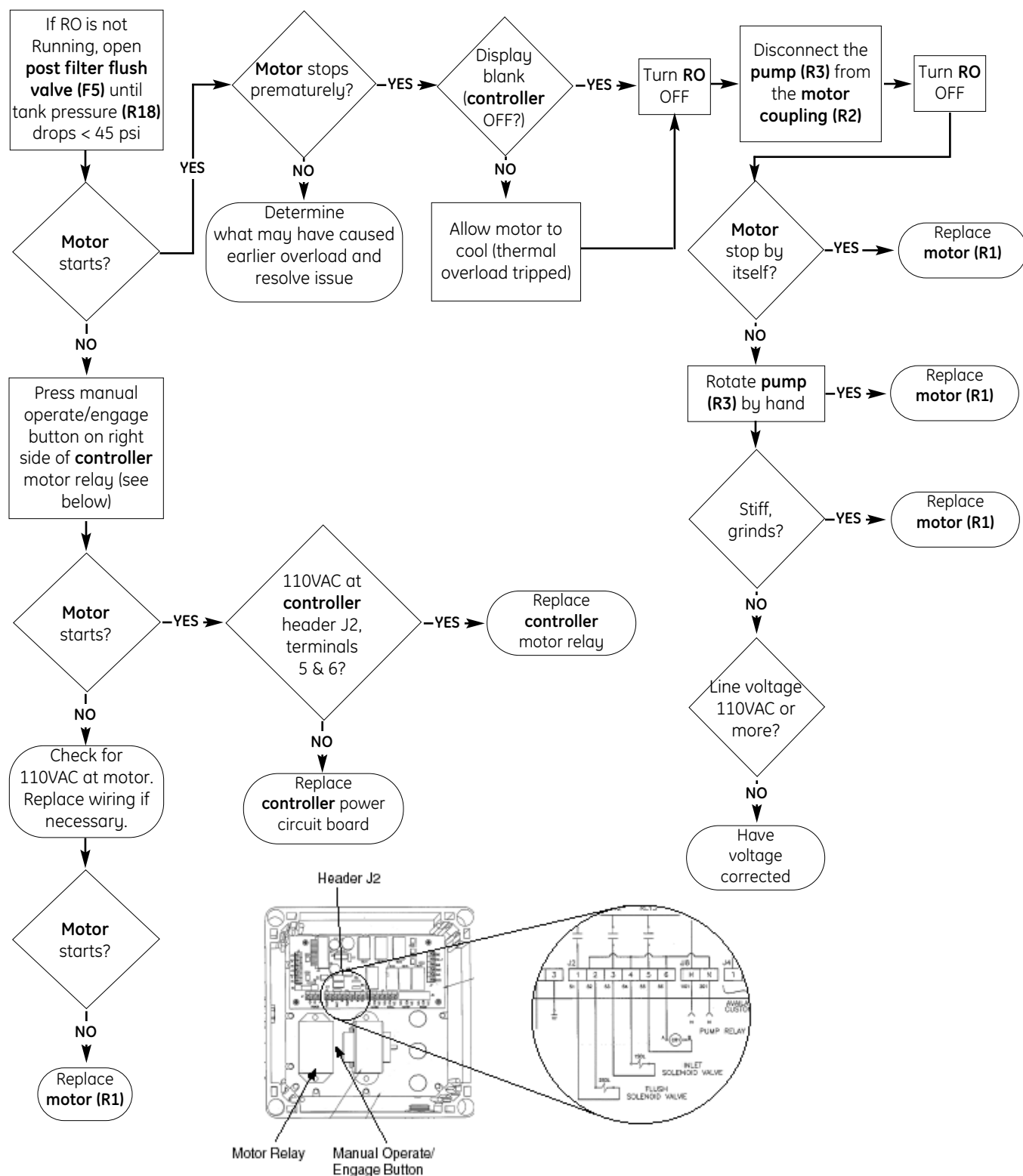


## Test Procedure: Pump and Motor (page 3 of 3)

### Troubleshooting: pump and motor not running, running intermittently

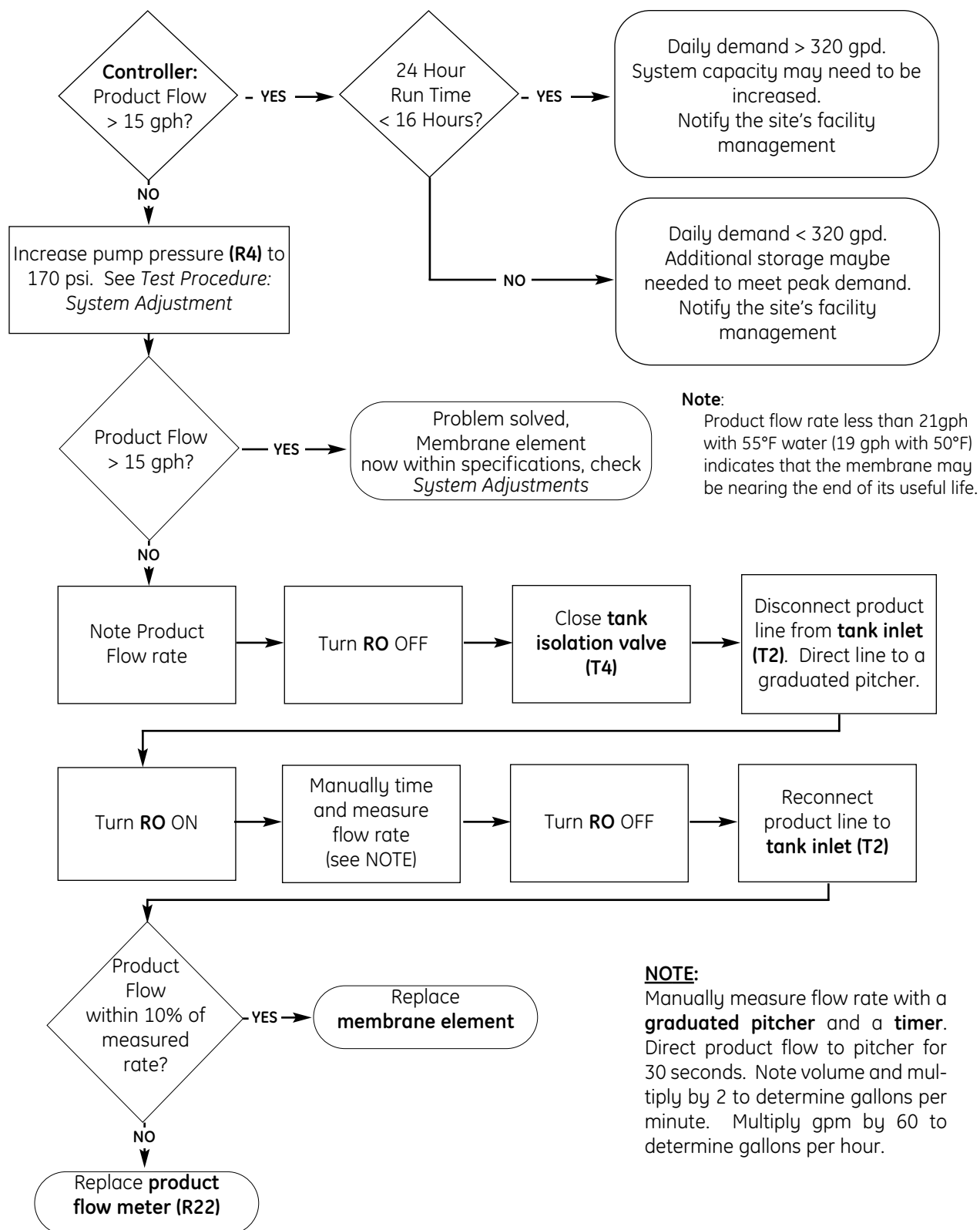
Check **controller** display. If not display, turn **controller** OFF then ON to reset the breaker.

If **controller** display does not return, see *Troubleshooting: No Water* (under "no display").



## Test Procedure: Membrane Element Production

This test will determine if the output of **membrane element** is fouled or if the system output meets the minimum requirements of store volume. It is assumed that all other variables have first been eliminated as per *Troubleshooting: No Water*.



## Service Procedure: Pre-filter Cartridge Replacement

### Tools Required

filter wrench

### Materials Required

(supplied with filter kit, see page 35)

(1) sediment filter

1255744

(2) carbon filters

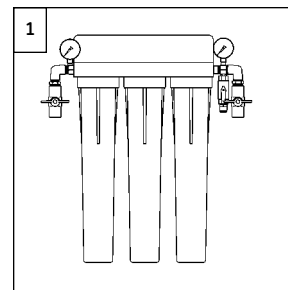
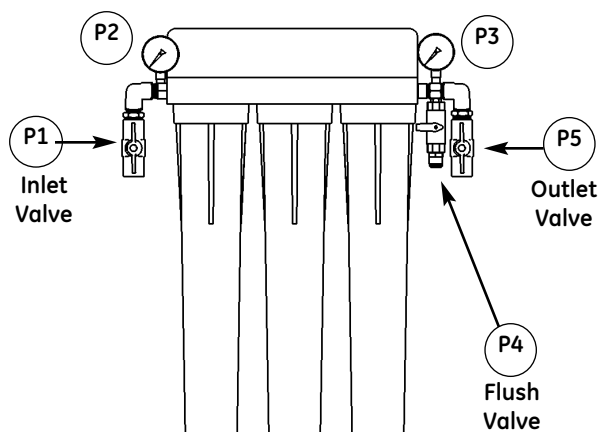
1225745

O-rings

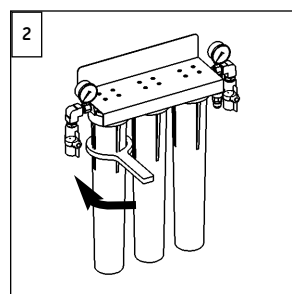
Food-grade lubricant

### \*NOTE:

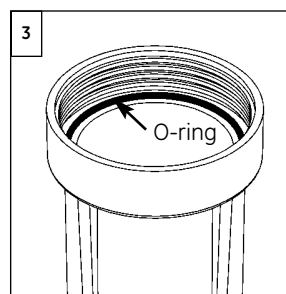
Each **filter housing** weighs approximately 15 pounds when filled with water. Be prepared to support this weight when the housings are removed. Clean up any spilled water.



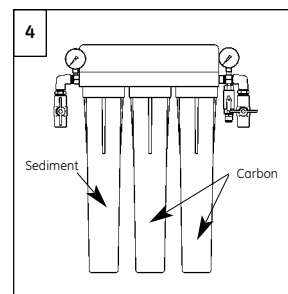
- Close the **inlet valve (P1)** and **outlet valve (P5)**.
- Open the **flush valve (P4)** to relieve pressure.



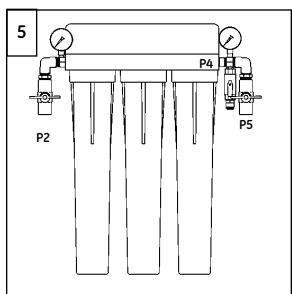
- Loosen **filter housings** with the filter wrench.
- Unscrew the **housings** by hand and remove.\*
- Discard the old **filter cartridges** and **O-rings**



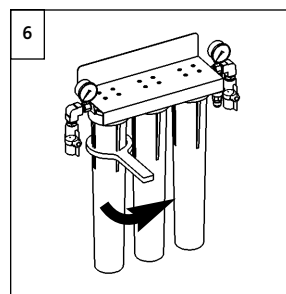
- Clean and sanitize the **filter housings**.
- Lightly lubricate a new **O-ring**.
- Install a new **O-ring** in the groove at the top of each **filter housing**.



- Install new **pre-filter cartridges** in the **pre-filter housings**.
- Thread **pre-filter housings** back onto the heads. **Note the correct location of the pre-filters.**
- Tighten **pre-filter housings** as much as you can by hand. **Do not over-tighten or use the pre-filter wrench.**



- Ensure **flush valve (P4)** is open and tubing is directed to drain.
- Open the **inlet valve (P1)**.
- Flush system for one minute.
- Close the **flush valve**.
- Open the **outlet valve (P5)**.



- Check for leaks.
- If necessary, tighten the **filter housings gently** using the **pre-filter wrench**
- On the **controller**, press **ENT** and **ESC** keys for four seconds to reset the pre-filter change timer.

## Service Procedure: Post filter Cartridge Replacement

### Tools Required

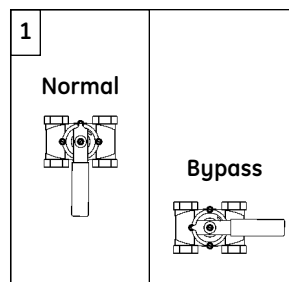
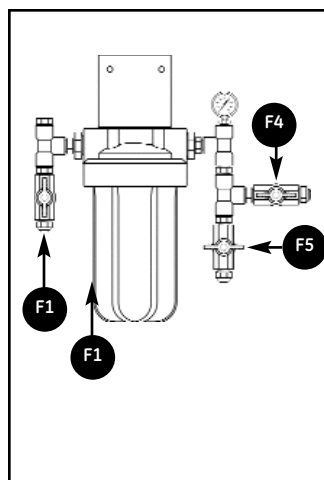
filter wrench

### Materials Required

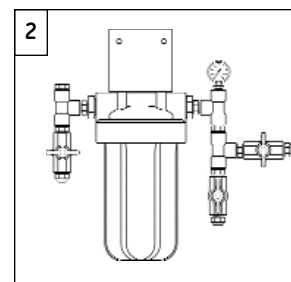
(1) sediment filter  
SKU 187200  
(2) carbon filters  
SKU 187201  
O-rings  
(supplied with filters)  
food-grade lubricant  
(supplied with filters)

### \* NOTE:

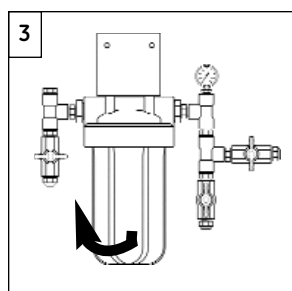
Each **filter housing** weighs approximately 15 pounds when filled with water. Be prepared to support this weight when the housings are removed. Clean up any spilled water.



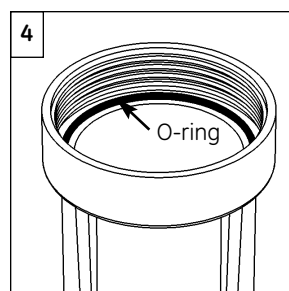
- Place the **system bypass valve** in **bypass**.



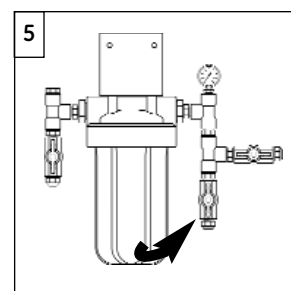
- Close the **inlet valve (F1)** and **outlet valve (F4)**.
- Open the **flush valve (F5)** to relieve pressure.



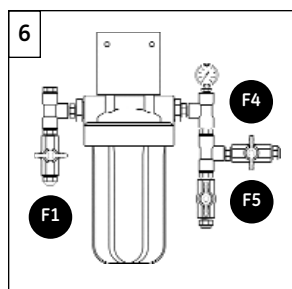
- Loosen the **filter housing** with the filter wrench.
- Unscrew the **housing** by hand and remove.\*
- Discard the old **filter cartridge** and **O-ring**.



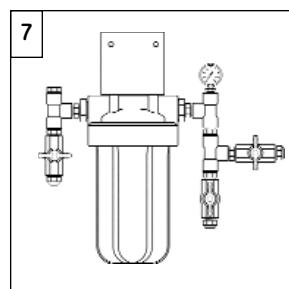
- Clean and sanitize **filter housing**.
- Lightly lubricate a new **O-ring**.
- Install new **O-ring** in the groove at the top of the filter housing.



- Install a new pre-filter cartridge in the **filter housing**.
- Thread **filter housing** as much as you can by hand. *Do not over-tighten or use the filter wrench.*
- Tighten **filter housing** as much as you can by hand. *Do not over-tighten or use the filter wrench.*



- Ensure **flush water (F5)** and tubing is directed to drain.
- Open the **inlet valve (F1)**.
- Flush system for five minutes.
- Close the **flush valve (F5)**.
- Open the **outlet valve (F4)**.



- Check for leaks.
- If necessary, tighten the **filter housing gently** using the **filter wrench**.

## Service Procedure: Membrane Element Replacement (page 1 of 2)

### Tools Required

wrenches  
pliers

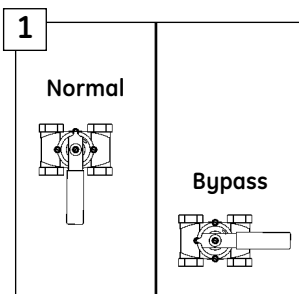
### Materials Required

membrane element

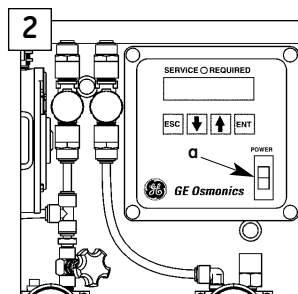
### NOTE:

The **membrane element housing** weighs approximately 20 pounds when filled with water.

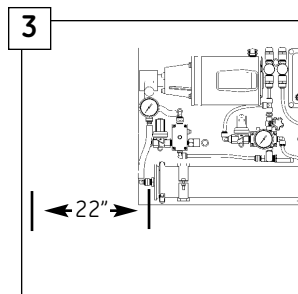
Be prepared to support this weight when the membrane housing is removed. Clean up any spilled water.



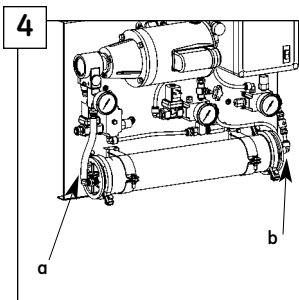
- a. Place the **system bypass valve** in *bypass*.



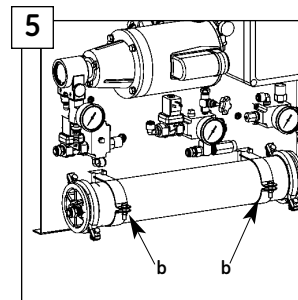
- a. Turn the **RO OFF**.



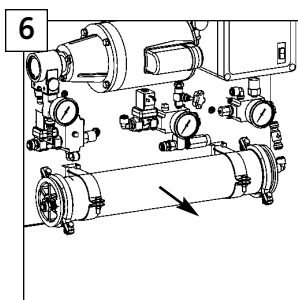
- a. Check clearance to left of housing:  
**22" or more:** proceed to **Step 7a**.  
**Less than 22-inches** proceed to **Step 4**.



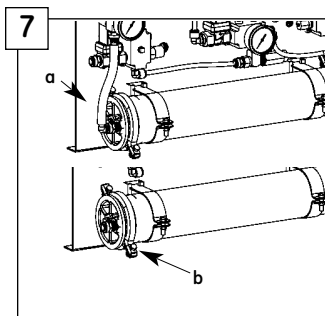
- a. Disconnect the tube to the **housing inlet**.  
b. Disconnect the two tubes from the housing outlets. *Note the position of each tube to the outlets.*



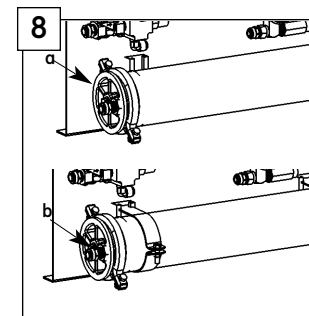
- a. Ask an assistant to hold up the **housing** (housing will drop when clamps are undone).  
b. Remove the fasteners from the clamps holding the housing to the panel.



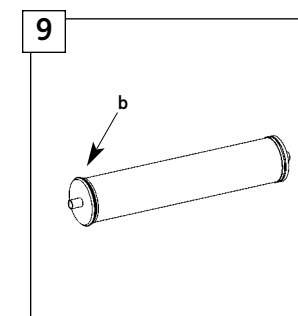
- a. Remove the **housing** from the panel and place it on the bench, sink or other flat surface.  
b. Skip to **Step 7b**.



- a. Disconnect the tube to the **housing inlet**.  
b. Remove the **clamp** holding the black plastic **end cap** to the housing.

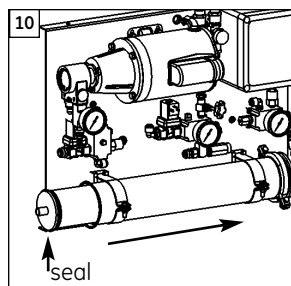


- a. Remove the **endcap**.  
b. Extract the **membrane element** from the housing with pliers.  
c. Discard the **membrane element**.

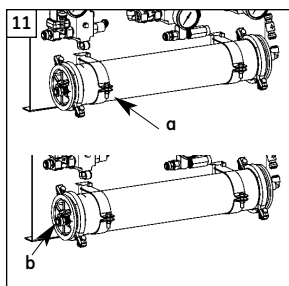


- a. Remove the new **membrane element** from its plastic bag.  
b. NOTE: The inlet end of the **membrane element** has a black rubber seal (**brine seal**) around it.

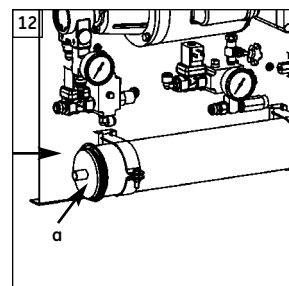
## Service Procedure: Membrane Element Replacement (page 2 of 2)



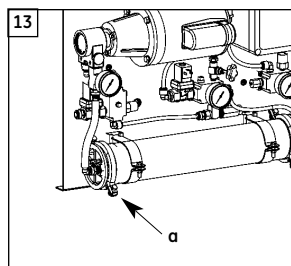
- Insert the end of the **membrane element** opposite of the **brine seal** into the housing.
- Slide the **membrane element** into the housing.



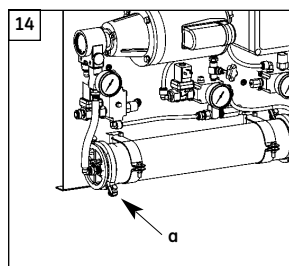
- Use care when inserting the **brine seal** to avoid damaging it.
- Resistance will be felt when the **membrane element** mates with the outlet endcap. Press to seat fully.



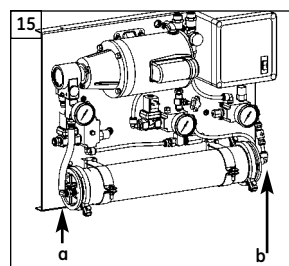
- Insert the **endcap** into the inlet end of the **housing**.
- Press firmly to overcome the resistance of the O-rings on the **endcap**.



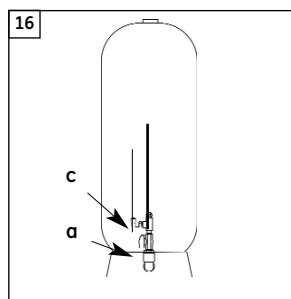
- Replace the endcap clamps on the housing and tighten the bolts.
- If the housing was not removed from the frame, skip to step 15b.



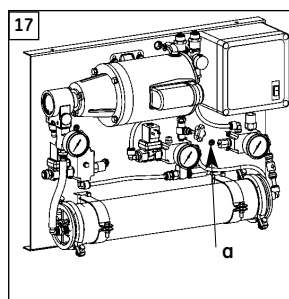
- Ask an assistant to hold the **housing** in place on the frame.
- Replace the clamps and secure them with the bolts.



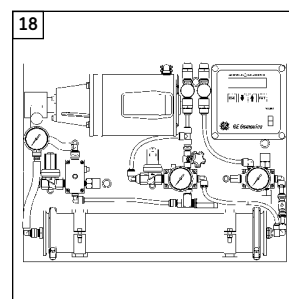
- Reconnect the tube to the **housing inlet**.
- Reconnect the two tubes to the appropriate housing outlets.



- Close the **isolation valve** on the **storage tank**.
- Open the **post filter valve (F5)** to relieve line pressure.
- Disconnect the **product line** at the **storage tank inlet** and redirect the line to drain.
- Place the **system bypass valve** in the **normal** position.

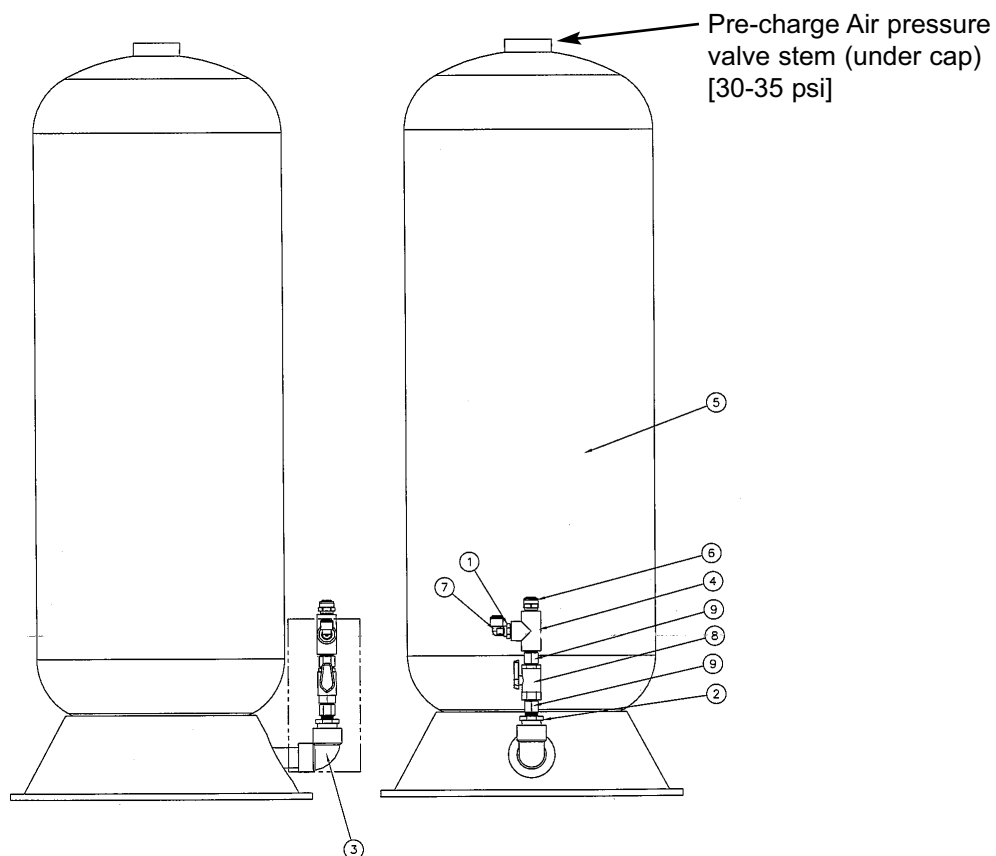


- Open the **concentrate valve** two full turns.
- Turn the RO power ON.
- Check for leaks.
- Run the RO for 20 minutes.
- Stop the RO.
- Reconnect the **product line** to the **storage tank inlet**.
- Open the **storage tank isolation valve**.



- Turn the **RO ON**.
- Adjust system settings. See *Test Procedure: System Adjustment*.
- Check the product quality and confirm that it is within standard.

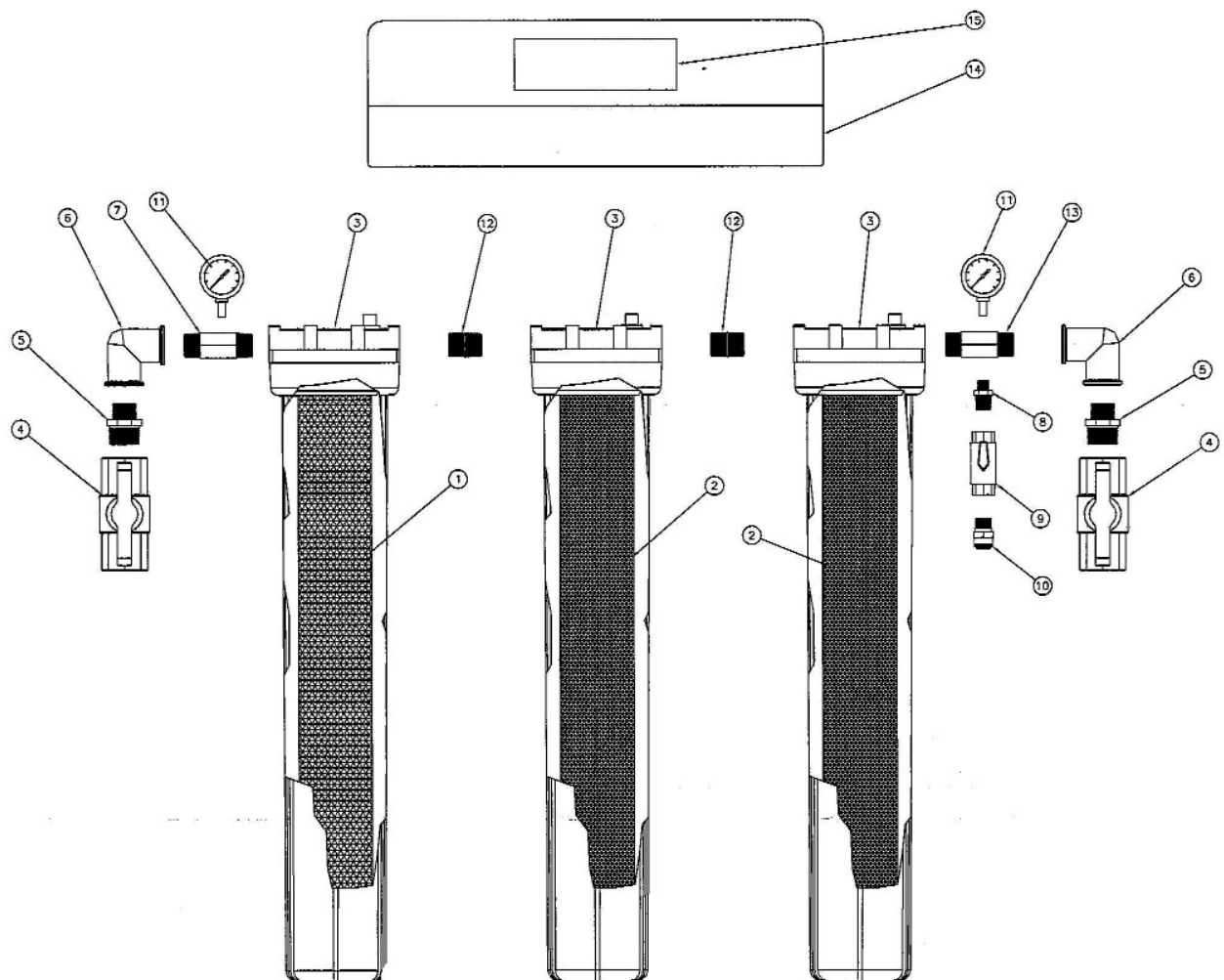
## Parts Diagram: Storage Tank



Part		Manual Reference	Part Number	Part Name	Make	Model
1	Bushing		1110314	BUSHING, PVC, MPT x FPT, 0.50 x 0.38		
2	Bushing		1110322	BUSHING, PVC, FPT x PVC, 1.00 x 0.50		
3	Elbow		1110360	ELBOW-90, FPT,PVC, 1.00		
4	Tee		1110404	TEE, PVC, FPT, 0.50		
5	Storage Tank	T1	1235146	TANK, STORAGE, PP, 30 GAL	RO mate	30853
6	Tank Outlet	T3	1237107	CONNECTOR, MPT x TB, ACETAL, 0.50 x 0.50		
7	Tank Inlet	T2	1237108	ELBOW, FIXED, MPT x TB, ACETAL, 0.38 x 0.38		
8	Tank Isolation Valve	T4	1244357	VALVE-BALL, PVC, 0.50 FPT	SMC	PVC-638-8F8F-B
9	Nipple		1255436	NIPPLE, MPT, NYL, 0.50 x CLS, HEX		

## Parts Diagram: Pre-Filter

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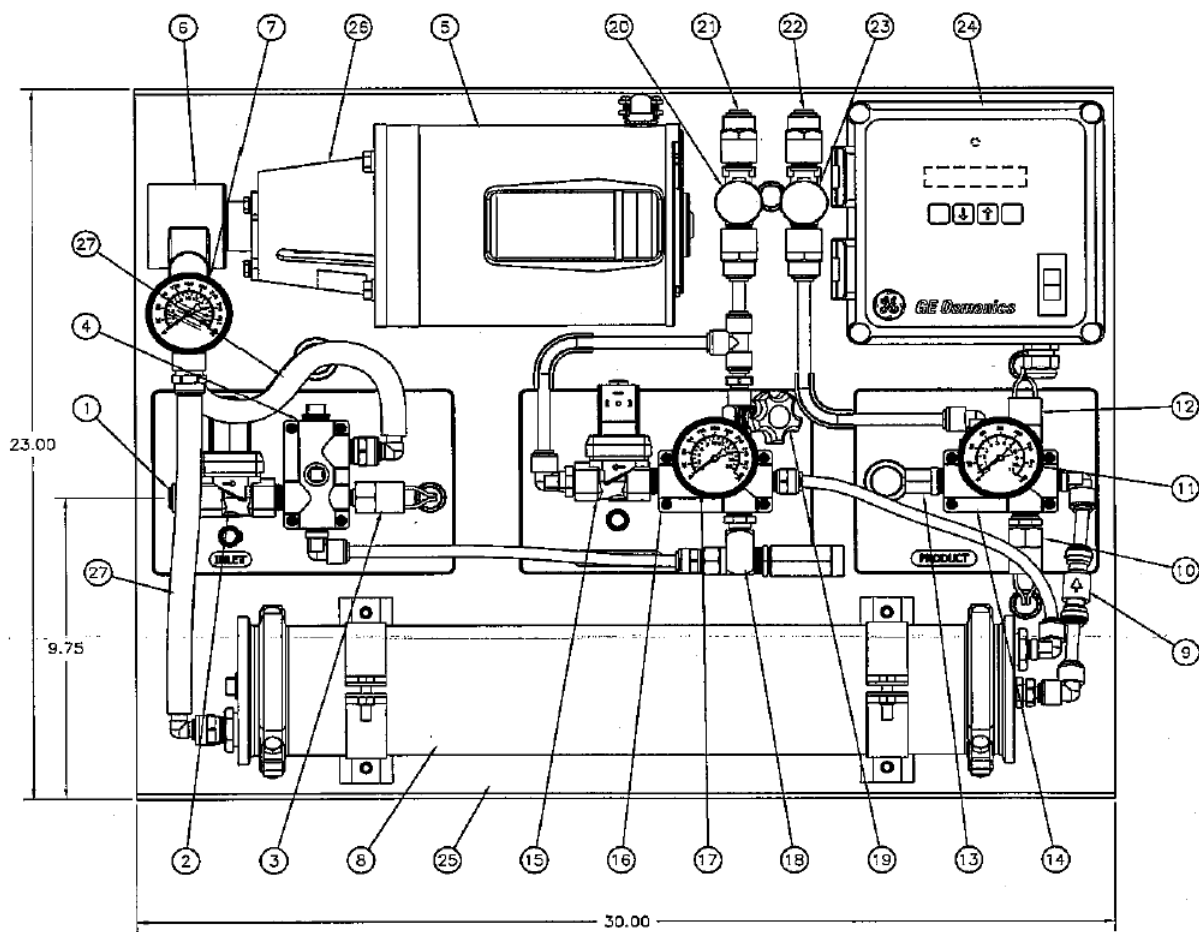
## Parts Diagram: Pre-Filter

	Part	Manual Reference	Part Number	Part Name	Make	Model
1	Sediment Filter Cartridge		1255744*	FILTER, SEDIMENT, HYTREX, 20", 5 MICRON	Hytrex	GX04-20
2	Carbon Filter Cartridge		1255745*	CARTRIDGE, CARBON, 20", 10 MICRON	Sta-rite	F10-250-20
3	Filter/Housing/Head Assembly	P6, P7, P8	1255746	HSG, PRE-FILTER, 20"	Pentair	158205
4	Inlet/Outlet Valve	P1, P5	1255747	INLET/OUTLET VALVE	Matco-Norca	VMATP-BV155
5	Nipple		1255748	VALVE-BALL, PVC, 0.75"		
6	Elbow		1255749	NIPPLE, NYLON, 0.75" x 0.50"		
7	Nipple, 1 Port		1255751	ELBOW, 0.50", PORT, CHR/BRASS		
8	Nipple		1255757	NIPPLE, 0.50", CHROME		
9	Flush Valve	P4	1255758	VALVE-BALL, PVC, 0.25"	SMC	6380090
10	Connector		1255759	CONNECTOR, MPT X TB, 0.38" x 0.25"		
11	Inlet/Outlet Pressure Gauge	P2, P3	1255762	GAUGE, PRESS, 1.50" DIAL./125 PORT	Span	SPAN101 D-158E
12	Nipple		1255763	NIPPLE, 0.50", CHROME-BRASS		
13	Nipple, 2 Ports		1255764	NIPPLE, 0.50", PORTS, CHR/BRASS		
14	Housing Bracket		1255693	BRACKET, HOUSING, PRE-FILTER		
15	Pre-filter NSF Label		1255694	LABEL, NSF42, PRE-FILTER		

\* **NOTE:** Filter cartridges are available as four-pack kits that include four replacement O-rings and food grade lubricant. GE recommends:

1	Sediment Filter Cartridge Kit		1244712	4 X FILTER, SEDIMENT, HYTREX, 20", 5 MICRON, 4 X O-RINGS, LUBRICANT		
2	Carbon Filter Cartridge Kit		1244713	4 X CARTRIDGE, CARBON, 20", 10 MICRON, 4 x O-RINGS, LUBRICANT		

## Parts Diagram: RO System

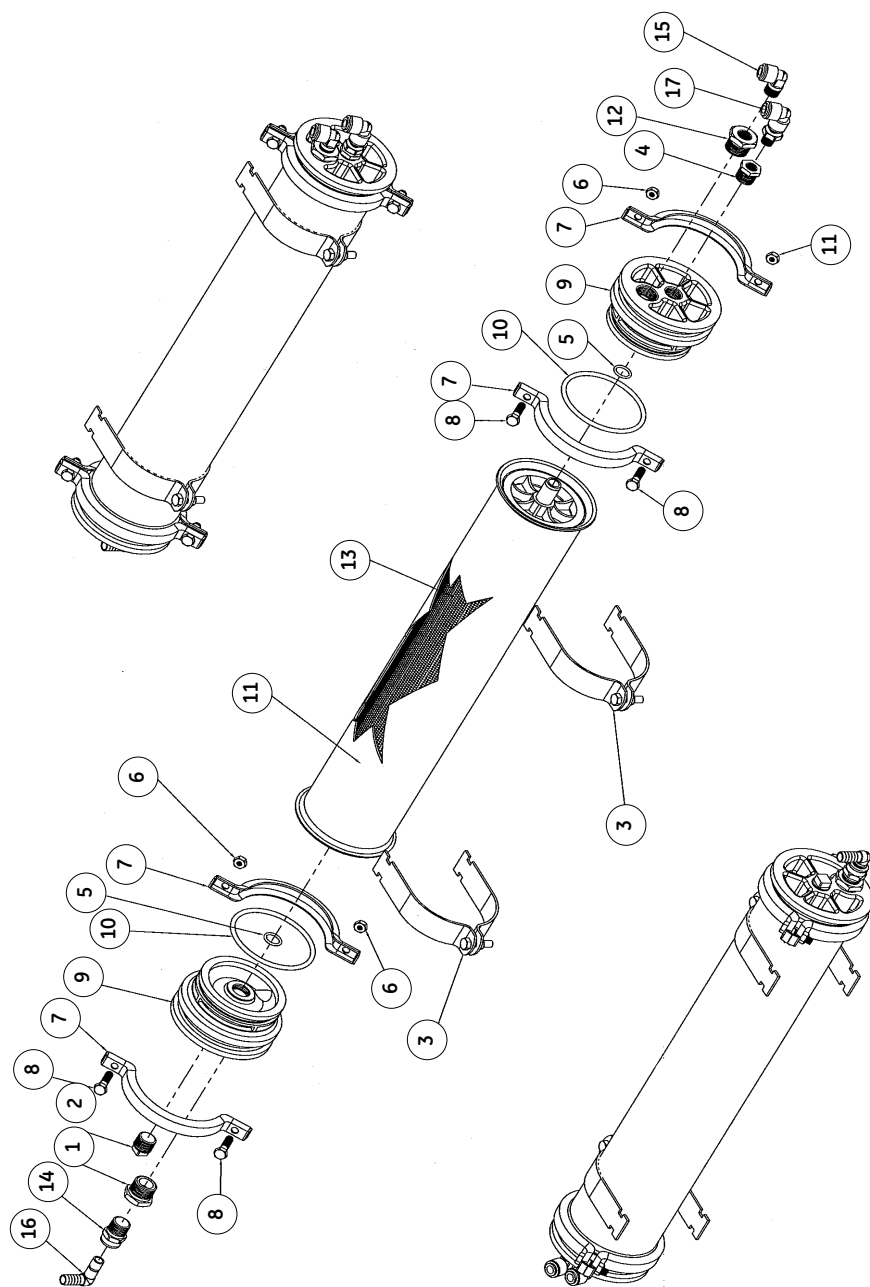


## Parts Diagram: RO System

	Part	Manual Reference	Part Number	Part Name	Make	Model
1	Inlet Connector		1237107	INLET CONNECTOR, (0.5" MPT x 0.5" TB)	Parker	A8MC8-MG
2	Inlet Solenoid	R5	1235081	VALVE-SOL, BRS, 0.5, FPT, 120 VAC	Burkert	456-540C
3	Inlet Pressure Switch (8 psi)	R7	1239726	INLET PRESSURE SWITCH	Nason	
4	Inlet Manifold	R6	1255150	MANIFOLD, FLOW-BLOCK, WM-800, MOLDED		
5	Motor	R1	1226456	PUMP MOTOR	Marathon	56C17D5916
6	Pump	R2	1237106	PUMP	Procon	
7	Pump Discharge Pressure Gauge	R4	1113393	GAUGE, PRESS, 2.5, PSI, 300 SS, BACK	ENFM	#7229, 0-300
8	Membrane Housing	R8	1162152	HOUSING		
9	Product Check Valve	R16	1235086	VALVE-CHK, ACETAL, 0.38	John Guest	3/8SCV
10	Tank LO Pressure Switch (45 psi)	R17	1239727	PRODUCT LOW PRESSURE SWITCH	Nason	
11	Tank Pressure Gauge	R18	1118571	GAUGE, PRESS, 316, 2.5, PSI, 160, BACK	ENFM	#7229; 0 - 160
12	Tank HI Pressure Switch (60 psi)	R19	1239728	PRODUCT HIGH PRESSURE SWITCH	Nason	
13	Conductivity Sensor	R14	1237117	PRODUCT CONDUCTIVITY SENSOR		
14	Product Manifold	R15	1255150	MANIFOLD, FLOW BLOCK, WM-800, MOLDED		
15	Flush Solenoid Valve	R9	1235081	VALVE-SOL, BRS, 0.5, FPT, 120VAC	Burkert	456, 540 C
16	Concentrate Manifold	R10	1255150	MANIFOLD, FLOW BLOCK, WM-800, MOLDED		
17	Concentrate Pressure Gauge	R11	1113393	GAUGE, PRESS, 2.5, PSI, 300, SS, BACK	ENFM	#7229; 0 - 300
18	Pressure Regulator Valve	R12	1235089	PRESSURE REGULATOR VALVE	SMC	555
19	Concentrate Valve	R13	1237674	CONCENTRATE VALVE		
20	Concentrate Flow Meter	R25	1237118	CONCENTRATE FLOW METER		
21	Concentrate Outlet	R24	1237116	CONNECTOR, FPT x TB, ACETAL, 0.50" x 0.38" HSG, PRE-FILTER, 20"	Parker	A6FC8-MG
22	Product Outlet	R23	1237116	CONNECTOR, FPT x TB, ACETAL, 0.50 x 0.38	Parker	A6FC8-MG
23	Product Flow Meter	R22	1237118	PRODUCT FLOW METER		
24	Controller	R21	1237248	ELECTRICAL ENCLOSURE		
25	Backpanel		1237128	PANEL		
26	Motor Coupling	R2	1119529	PUMP ADAPTER	Procon	1048-1C
27	PVC Tube		1237115	PVC TUBING (0.5" ID, 0.75" OD)	Accuflex	K6158-08

## Parts Diagram: Membrane Element Housing

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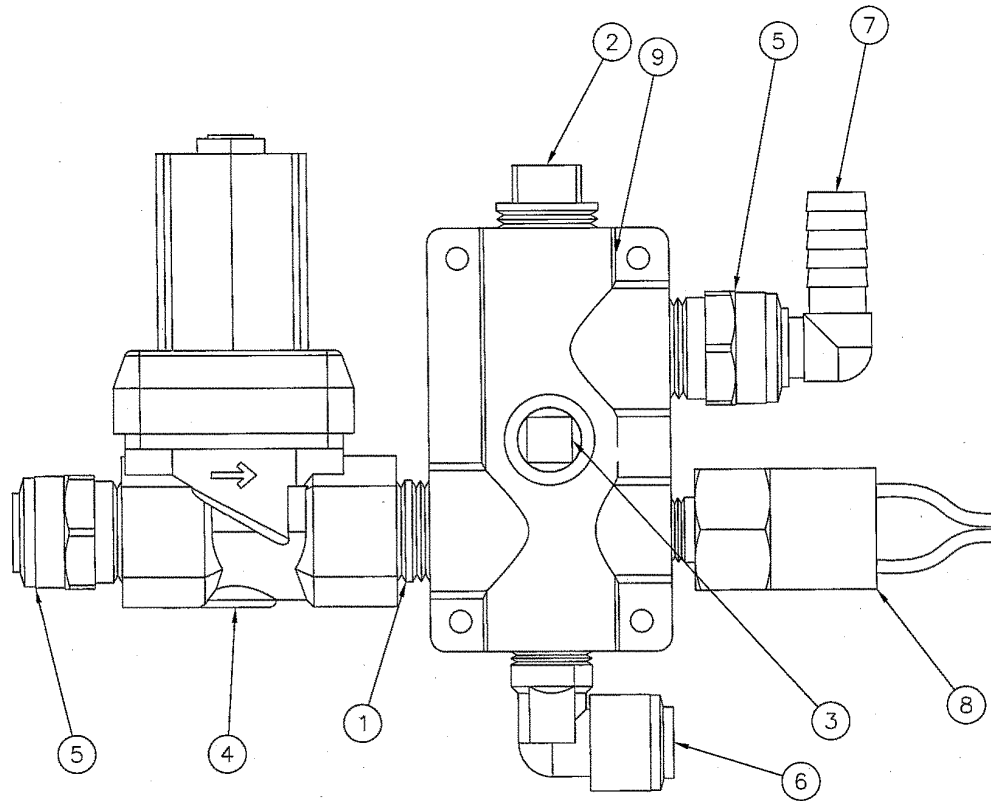


## Parts Diagram: Membrane Element Housing

	Part	Manual Reference	Part Number	Part Name	Make	Model
1	Bushing		1110269	BUSHING, MPTXFPT, 304, 0.75 x 0.50		
2	Plug		1110455	PLUG, PIPE, MPT, NYL, SQH, 0.50		
3	Housing Clamp		1111640	CLAMP, PIPE, GALV, 4.25 OD		
4	Bushing		1115482	BUSHING MPTXFPT, 304, 0.50X0.25		
5	O-Ring, Inner		1151580	O-RING, EPDM 116, 70DUR		
6	Hex Nut		1154925	NUT, HEX, NYLOCK,M 18-8, 031- 18C		
7	Endcap Clamp		1158328	CLAMP, HALF, 4.0, FL, SS, 300 PSIG		
8	Bolt		1158446	SCREW, CAP, HH, 18-8, 0.31- 18 x 1.25		
9	Endcap		1158620	ENDCAP, SH, 4.0, FL, GFN, EE		
10	O-Ring, Outer		1159957	O-RING, EPDM, 342, 70DURO		
11	Membrane Housing	R8	1162152	HSG, SH-1/4 X 21-DC, 316, FL, UNPK		
12	Bushing		1203391	BUSHING, MPTXFPT, 316, 0.75 X 0.38		
13	Membrane Element		1206812	ELEMENT, AK4051T1773	Desal	AK4021T1773
14	Connector		1237107	CONNECTOR, MPT X TB, ACETAL, 0.50 X 0.50	Parker	A8MC8-MG
15	Elbow		1237108	ELBOW, FIXED, MPT S TB, ACETAL, 0.38 X 0.38	Parker	A6ME6-MG
16	Elbow		1237112	ELBOW, TB X HSB, ACETAL, 0.50 X 0.50	Parker	A8TEB8
17	Elbow		1237114	ELBOW, SWIVEL, MPT X TB, ACETAL, 0.25 X 0.38	Parker	A6MES4-MG

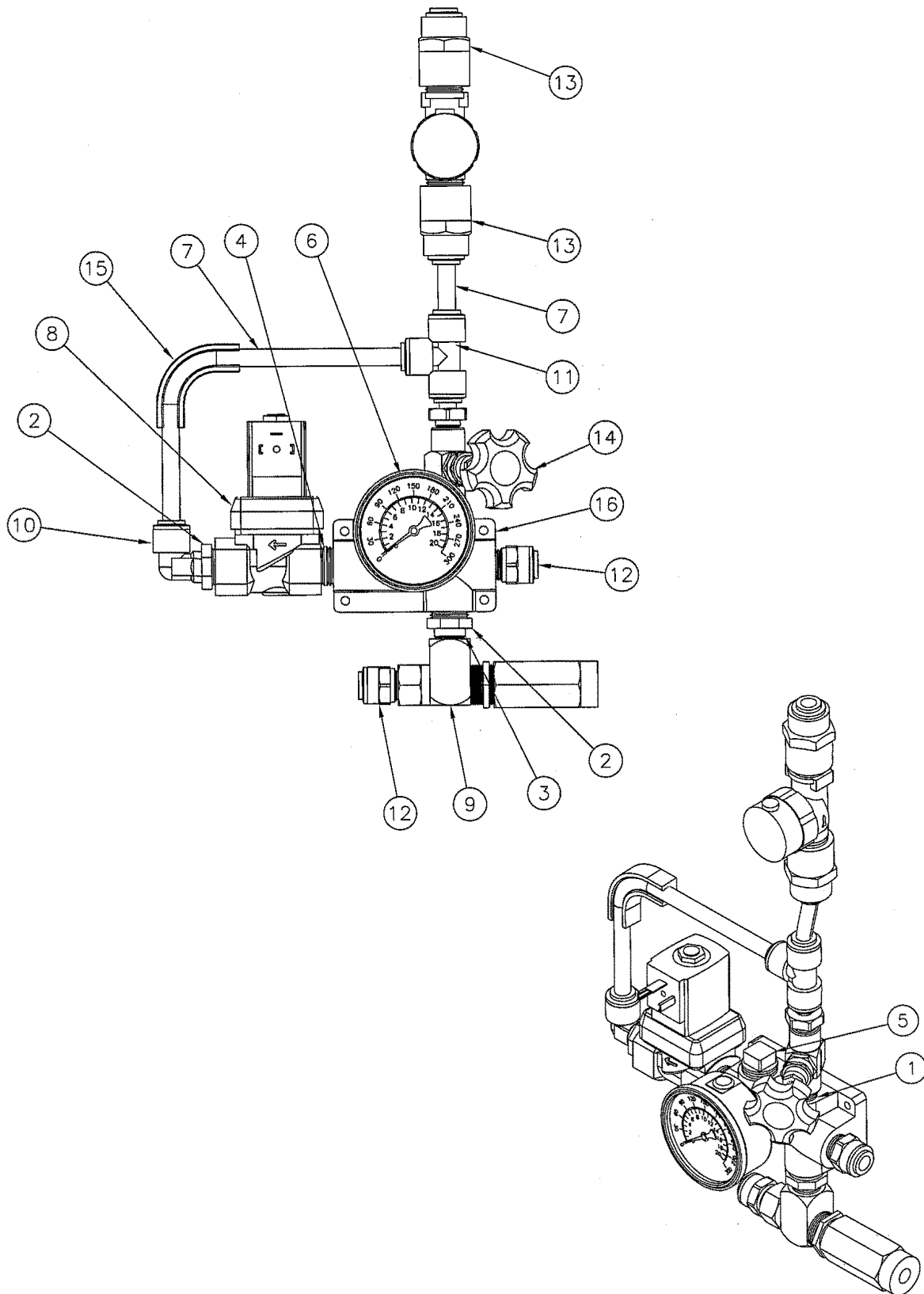


## Parts Diagram: RO Inlet Manifold Assembly



Part	Manual Reference	Part Number	Part Name	Make	Model
1		1110379	NIPPLE, PVC, MPT, 0.50 XCLS		
2		1110455	PLUG, PIPE, MPT, NYL, SQH, 0.50		
3		1110519	PLUG, PIPE, MPT, NYL, SQH, 0.25		
4	R5	1235081	VALVE-SOL, BRS, 0.5, FPT, 120VAC	Burkert	456 540 C
5		1237107	CONNECTOR, MPXTB, ACETAL, 0.50 x 0.50	Parker	A8MC8-MC
6		1237108	ELBOW, FIXED, MPT x tB, ACETAL, 0.38 x 0.38	Parker	A6ME6-MB
7		1237112	ELBOW, TB x HSB, ACETAL, 0.50 x 0.50	Parker	A8TEB8
8	R7	1239726	SWITCH, PRESS, 8 PSI, NON-ADJ, WITH PLUG		
9	R6	1255150	MANIFOLD, FLOW-BLOCK, WM-800, MOLDED		

## Parts Diagram: RO Concentrate Manifold Assembly

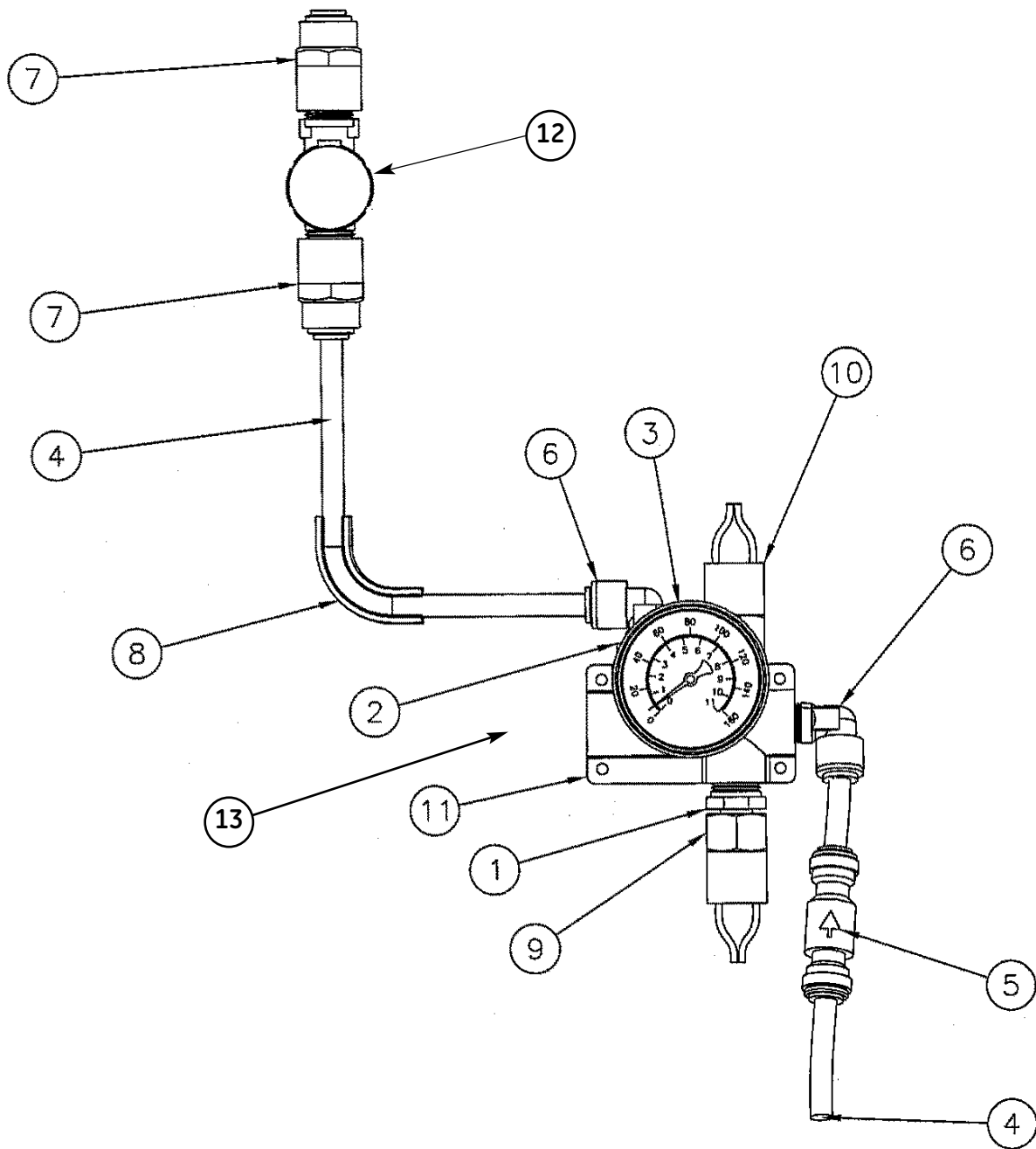




## Parts Diagram: RO Concentrate Manifold Assembly

	Part	Manual Reference	Part Number	Part Name	Make	Model
1	Nipple		1110154	NIPPLE,BRS, MPT, 0.25 X CLS		
2	Bushing		1110314	BUSHING, PVC, MPT X FPT, 0.50 x 0.38		
3	Nipple		110376	NIPPLE, MPT, PVC, 0.38 X CLS		
4	Nipple		1110379	NIPPLE, MPT,PVC, 0.5 X CLS		
5	Plug		1110455	PLUG, PIPE, MPT, NYL, SQH, 0.50		
6	Concentrate Pressure Gauge	R11	1113393	GAUGE, PRESS, 2.5 PSI, 300 SS, BACK	ENFM	A6ME6-MB
7	Tube		1226629	TUBE, POLYETHYLENE, 0.38, WHITE	John Guest	PE-12 EI-0500F-W
8	Flush Solenoid Valve	R9	1235081	VALVE-SOL, BRS, 0.5, FPT, 120VAC	Burkert	456 540 C
9	Pressure Regulator Valve	R12	1235089	VALVE-REG, PRESS, BRS, 0.38	SMC	555
10	Elbow		1237108	ELBOW, FIXED, MPT X TB, ACETAL, 0.38 x 0.38	Parker	A6ME6-MG
11	Tee		1237111	TEE, SWIVEL, TB X MPT X TB, ACETAL, 0.38 x 0.38	Parker	A6MRS4-MG
12	Connector		1237113	CONNECTOR, MPT X TB, ACETAL, 0.38 x 0.38	Parker	A6MC6-MG
13	Connector		1237116	CONNECTOR, FPT X TB, ACETAL, 0.50 x 0.38	Parker	A6FC8-MG
14	Concentrate Valve		1237674	VALVE-NEEDLE, BRS, FPT, 0.25, 11 GPH		
15	Bend Clip		1237723	FITTING, CLIP, FLOW BEND, 0.38-INCH	John Guest	PM2610S
16	Concentrate Manifold		1255150	MANIFOLD, FLOW-BLOCK, WM-800, MOLDED		
17	Concentrate Flow Meter	R25	1237118	CONCENTRATE FLOW METER		

## Parts Diagram: RO Product Manifold Assembly

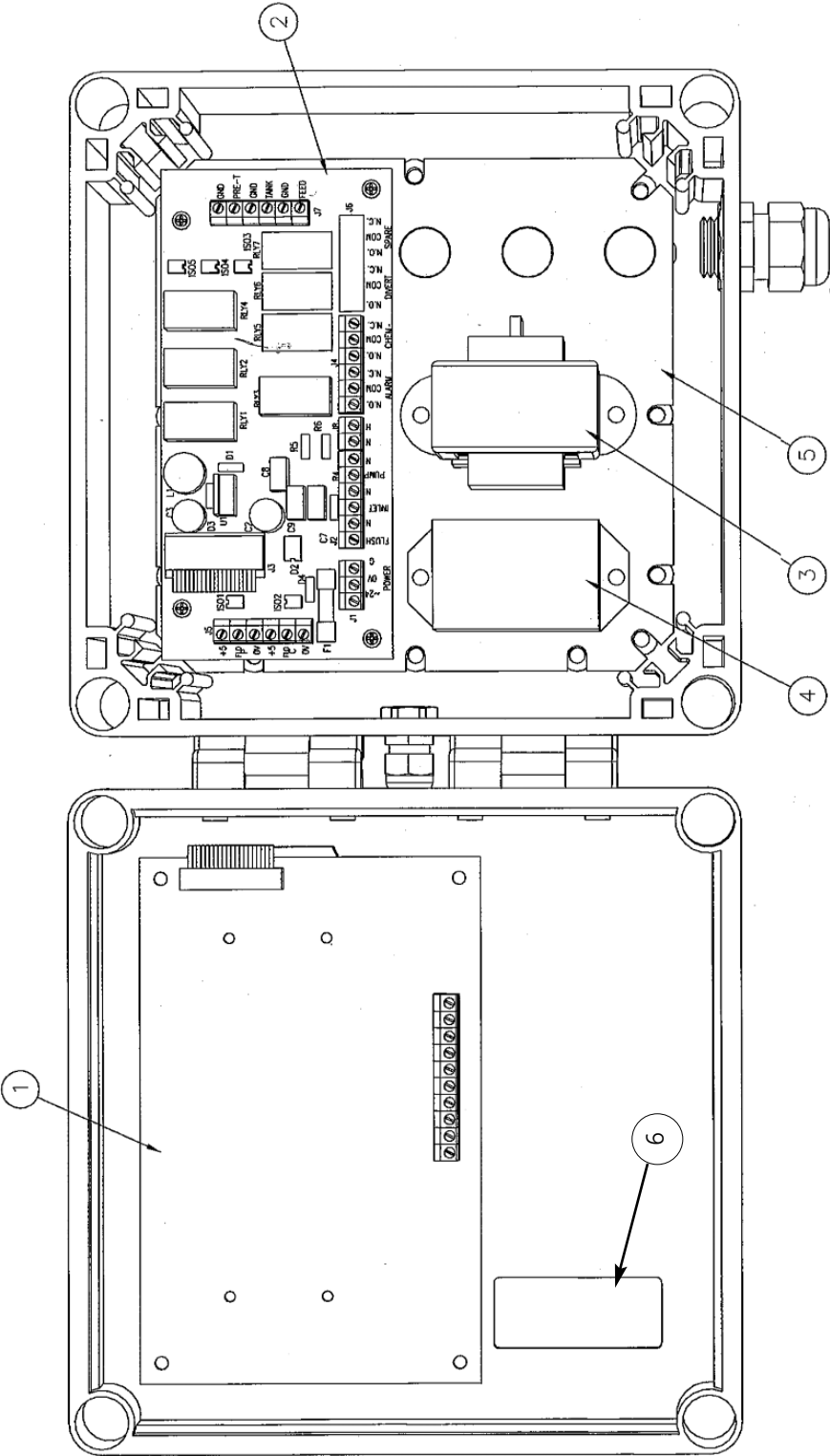


RO Product Manifold  
Parts List

## Parts Diagram: RO Product Manifold Assembly

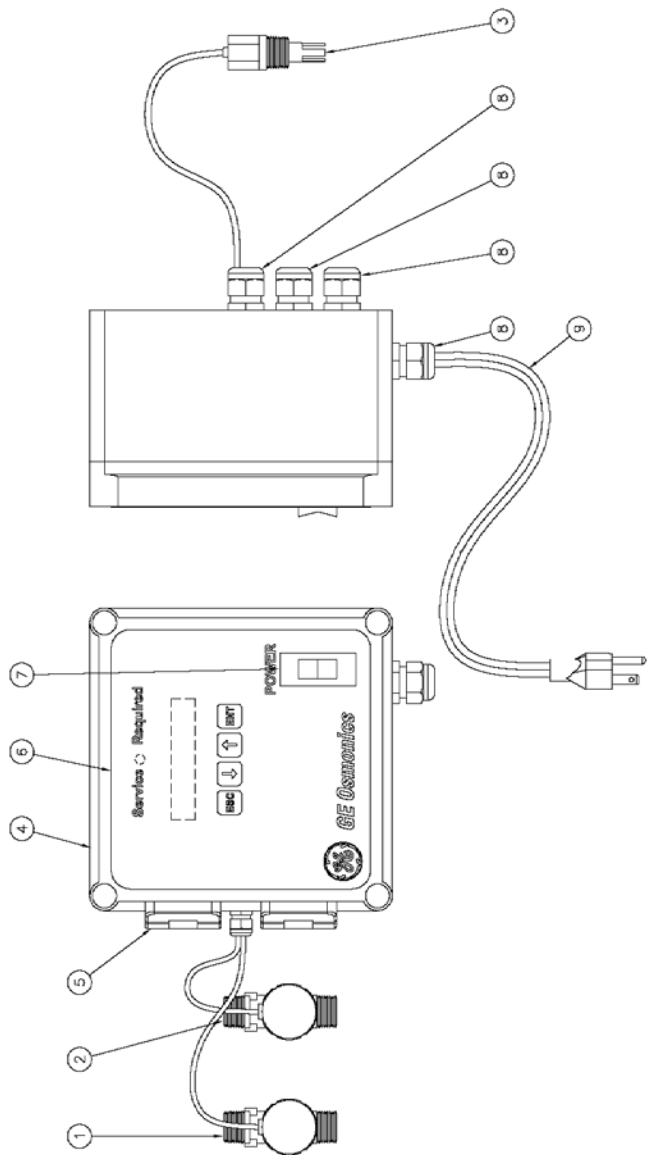
Part		Manual Reference	Part Number	Part Name	Make	Model
1	Bushing		1110312	BUSHING, PVC, MPT x FPT, 0.50 x 0.25		
2	Bushing		1110314	BUSHING, PVC, MPT x FPT, 0.50 x 0.38		
3	Tank Pressure Gauge	R18	1118571	GAUGE, PRESS, 316, 2.5, PSI, 160, BACK	ENFM	7229; 1-160
4	Tube		1226617	TUBE, POLYETHYLENE, 0.38, BLUE	John Guest	PE-12-EL-0500F-B
5	Product Check Valve	R16	1235086	VALVE-CHK, ACETAL, 0.38	John Guest	3/8SCV
6	Elbow		1237108	ELBOW, FIXED, MPT x TB, ACETAL, 0.38 x 0.38	Parker	A6ME6-MG
7	Product Outlet	R23	1237116	CONNECTION, FPT x TB, ACETAL, 0.50 x 0.38	Parker	A6FC8-MG
8	Bend Clip		1237723	CONDUCTIVITY SENSOR FITTING, CLIP, FLOW BEND, 0.38"	John Guest	PM2610S
9	Tank LO Pressure Switch (45 psi)	R17	1239727	SWITCH, PRESS, 45 PSI, NON-ADJ, WITH PLUG		
10	Tank HI Pressure Switch (60 psi)	R19	1239728	SWITCH, PRESS, 60 PSI, NON-ADJ, WITH PLUG		
11	Product Manifold	R15	1255150	MANIFOLD, FLOW-BLOCK, WM-800, MOLDED		
12	Product Flow Meter	R22	1237118	PRODUCT FLOW METER		
13	Conductivity Sensor	R14	1237117	CONDUCTIVITY SENSOR		

Parts Diagram: RO Controller assembly



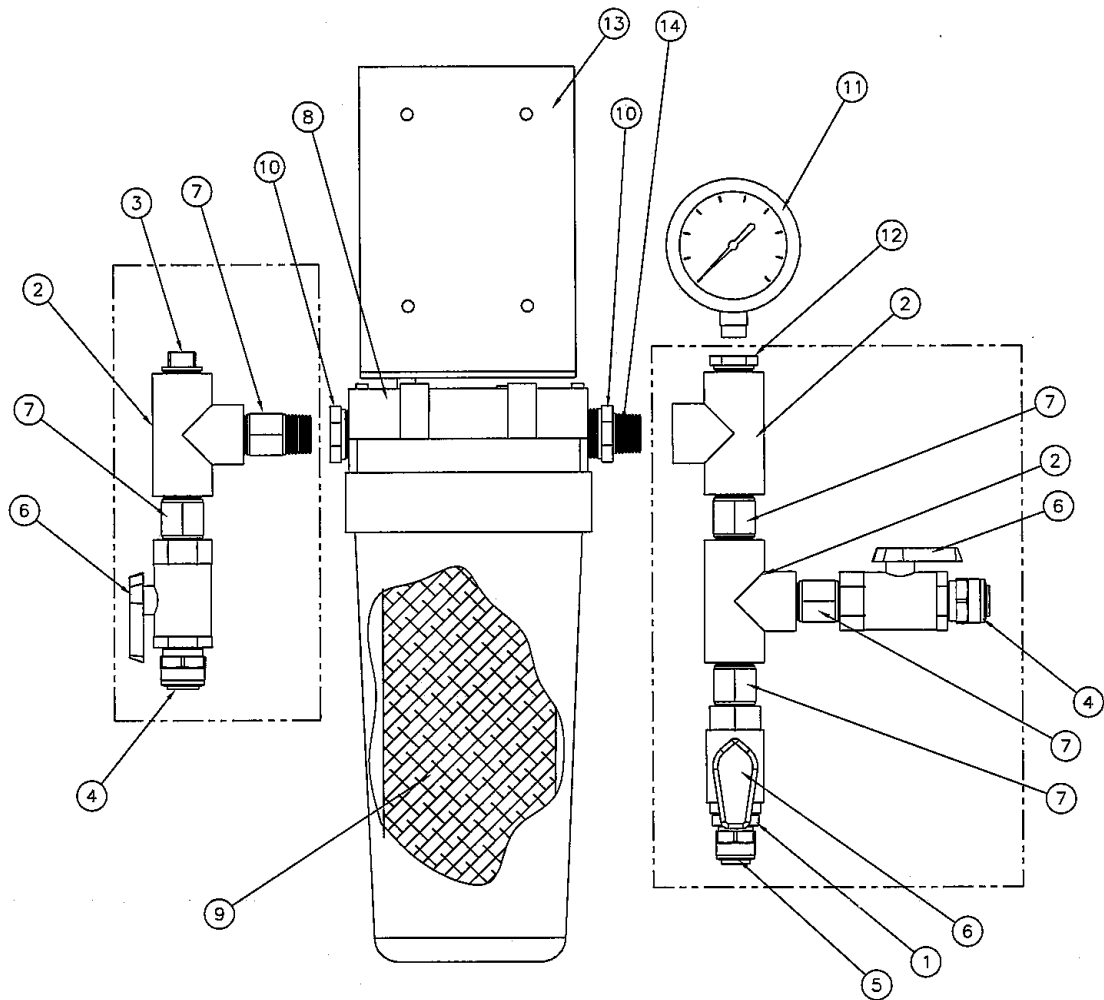
Part		Manual Reference	Part Number	Part Name	Make	Model
1	Display Circuit Board		1240000	DISPLAY CIRCUIT BOARD		
2	Power Circuit Board		1240001	POWER CIRCUIT BOARD		
3	Transformer		1237845	TRANSFORMER		
4	Power Relay		1239504	POWER RELAY		
5	Panel Circuit Breaker		1237251	PANEL		
6	Circuit Breaker		1237252	CIRCUIT BREAKER		

Parts Diagram: RO Controller



Part		Manual Reference	Part Number	Part Name	Make	Model
1	Concentrate Flow Sensor	R25	1237118	CONCENTRATE FLOW SENSOR		
2	Product Flow Sensor		1237118	PRODUCT FLOW SENSOR		
3	Conductivity Sensor	R24	1237117	CONDUCTIVITY SENSOR		
4	Enclosure	R14	1237249	ENCLOSURE		
5	Hinge Kit		1237122	HINGE KIT		
6	Label		1237123	LABEL		
7	Power Switch		1237252	SWITCH		
8	Connector	R20	1201667	CONNECTOR		
9	Cord		1113729	CORD		

## Parts Diagram: Post Filter assembly



PF-110 Post-Filter & Re-Mineralizer Assembly  
Parts List

## Parts Diagram: Post Filter assembly

	Part	Manual Reference	Part Number	Part Name	Make	Model
1	Bushing		1110314	BUSHING, PVC, MPT x FPT, 0.50 x 0.38		
2	Tee		1110404	TEE, PVC, FPT, 0.50		
3	Pipe Plug		1110455	PLUG, PIPE, MPT, NYL, SQH, 0.50		
4	Connector		1237107	CONNECTOR, MPT x TB, ACETAL, 0.50 x 0.50	Parker	A8MC8-MG
5	Connector		1237113	CONNECTOR, MPT x TB, ACETAL, 0.38 x 0.38	Parker	A8MC8-MG
6	Inlet/Outlet/Flush Valve	F1, F4, F5	1244357	VALVE-BALL, PVC, 0.50 FPT	SMC	6389390
7	Nipple		1255436	NIPPLE, MPT, NYL, 0.50 x CLS. HEX		
8	Housing/Head Assembly	F2	1261327	HSG, POST FILTER, 10"	SMC	PVC-638-8F8F-B
9	Carbon/Calcite Filter Cartridge		1261328	CARTRIDGE, CARBON/CALCITE, 10"		
10	Bushing		1261329	BUSHING, PVC, MPT x FPT, 1" x 0.50"		
11	Post filter Pressure Gauge	F3	1261330	GAUGE, PRESS, 2.00" DIAL/0.25" PORT	Catp	PMB204 ELME
12	Bushing		1261331	BUSHING, PVC, MPT x FPT, 0.50" x 0.25"		
13	Housing Bracket		1261352	BRACKET, HOUSING, POST FILTER		
14	Nipple		1261353	NIPPLE, 0.50"		

## Return Goods Authorization (RGA) Procedure

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If you wish to return goods for repair, warranty evaluation and/or credit, please have your original sales order or invoice available when you call GE. Call (800) 848-1750 and you will be prompted to the correct Customer Service Representative.

Please be prepared to provide the Model number: \_\_\_\_\_  
and Serial number: \_\_\_\_\_  
of the product being returned.  
(Model and Serial numbers are listed on the label attached to the product.)

GE Infrastructure telephone prompts:

- 2 A GE Customer Service Representative
- 3 All equipment GE Representative

A GE Customer Service representative will provide instructions and a **Returned Goods Authorization number (RGA #)**, which needs to be clearly written on the outside of the box used to ship your materials. All equipment must be shipped to GE with the freight prepaid by the customer. Call our Customer Service Center with any questions or issues concerning freight claims and a representative will discuss your situation.

All materials to be returned must be rendered into a non-hazardous condition prior to shipping.

Ship-to address:

**GE Osmonics, Inc.**  
**5951 Clearwater Drive**  
**Minnetonka, MN 55343 USA**  
**Attn: RGA# \_\_\_\_\_**



## Warranty: BEV-RITE

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### Warranty Terms

Subject to the terms and conditions set forth hereinafter, Seller (GE Osmonics, Inc. or any of its authorized subsidiaries) warrants to the original purchaser (hereafter the "Buyer") that the products manufactured by Seller are free from defects in material and in workmanship for twelve (12) months from the Warranty Commencement Date (as defined below) only when used strictly in accordance with the applicable operating instructions and within the range of the operating and maintenance conditions specified in this Service manual. This Warranty does not extend to equipment or components manufactured by others into which a Seller product has been incorporated or to equipment or components which have been incorporated into a Seller product but, if allowable, Seller hereby assigns, without warranty, to the Buyer its interest, if any, under any warranty made by the manufacturer of such equipment or component. This Warranty does not cover disposable items such as fuses, lamps, filters, cartridges, or other such disposable items, which must be replaced periodically under the normal and foreseeable operating conditions of the goods warranted hereby.

### Warranty Commencement Date

The Warranty Commencement Date for each Seller product shall be the later of the date of: (1) receipt by the Buyer, or (2) the date of installation at the Buyer's premises provided that such installation must occur within three (3) months of shipment from the Seller's manufacturing facility in Minnetonka, Minnesota. In no event shall the Warranty Commencement Date exceed three (3) months from the shipment from the Seller's manufacturing facility. The Buyer shall provide proof of purchase in order to exercise rights granted under this Warranty. If requested by GE Osmonics, the Buyer must also provide proof of the installation date. Proof of installation shall be returned by Buyer to Seller within thirty (30) days after installation by virtue of supplying a Warranty Validation Card supplied with each Seller product fully completed and signed in ink by Buyer and the authorized installer of the product.

### Warranty Service

SELLER'S OBLIGATION UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT (AT SELLER'S SOLE OPTION) OF ANY PRODUCT, OR COMPONENT THEREOF, PROVED TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP WITHIN THE COVERED WARRANTY PERIOD. The Buyer, at the Buyer's risk and expense, shall be responsible for returning such product or component, upon obtaining a Return Goods Authorization (RGA) number from the Seller, freight prepaid, and in conformance with any special packaging and shipping instructions set forth on the operation documentation or RGA instructions, or as otherwise reasonably required, to the Seller's address set forth below, together with

(1) RGA number issued by Seller at Buyer's request;

(2) Proof of purchase and, if necessary, proof of installation date;

Note: The original Purchase Order number, or a copy of the signed Warranty Validation card will be considered proof of purchase and installation.

(3) a description of the suspected defects;

(4) the serial number of the Seller product alleged to be defective; and

(5) a description of the type of water pretreatment equipment which has been utilized in connection with the product, if any.

## Warranty: BEV-RITE (cont'd)

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Seller shall, in Seller's reasonable discretion, be the sole judge of whether a returned product or component is defective in material or workmanship. Products or components to be repaired or replaced shall be returned to the Buyer by the Seller, freight prepaid by Seller, via UPS ground or best way surface freight. In genuine emergency situations, Seller will (at Seller's sole option) forward replacement parts to Buyer without waiting for authorized return of the questionable part(s). In such cases, Buyer will issue a purchase order or other payment guarantee prior to shipment. If the returned product is found to be defective, the Buyer's account will be credited for the full purchase price. If the returned item is found to have been misused or abused, or the defective part is not received by Seller within thirty (30) days, the Buyer will be invoiced for the replacement part(s) provided. This Warranty does not cover or include labor and/or travel to the Buyer's premises or any other location. Charges will be made for the usual and customary Seller costs and associated expenses incurred by Seller in providing Warranty Service at any location other than Seller's factory at the address set forth below, and Seller reserves the right to precondition such travel to Buyer's premises upon prepayment of Seller's anticipated costs of attending such premises.

### Voidability of Warranty

This Warranty shall be void and unenforceable as to any Seller product which has been damaged by accident, mishandling, abuse or has been repaired, modified, altered, disassembled or otherwise tampered with by anyone other than Seller or an authorized Seller service representative; or, if any replacement parts are not authorized by Seller have been used, or, the product has not been installed, operated and maintained in strict accordance and adherence with the operating documentation and manuals for such product. Any express warranty, or similar representation of performance set forth in the operation documentation for a reverse osmosis or ultrafiltration membrane incorporated into a Seller product shall be void and unenforceable unless the feed water requirements set forth in the operating documentation for such product are unequivocally and strictly adhered to.

### Limitations and Exclusions

THIS WARRANTY AND REMEDIES DESCRIBED HEREIN AND HEREINABOVE ARE EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER WARRANTY OR REMEDIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR OTHER SIMILAR TYPES OF DAMAGES, OR FOR DAMAGES FOR THE LOSS OF PRODUCTION OR PROFITS, OR INJURY TO PERSON OR PROPERTY. NO PERSON HAS ANY AUTHORITY TO BIND SELLER TO OTHER THAN WHAT IS SET FORTH ABOVE.

THIS WARRANTY GIVES THE BUYER SPECIFIC LEGAL RIGHTS AND THE BUYER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. THE PARTIES RECOGNIZE AND AGREE, THAT IN ALL RESPECTS THE LAWS OF THE STATE OF MINNESOTA SHALL APPLY TO AND SHALL GOVERN ANY INTERPRETATION OR LEGAL SIGNIFICANCE OF THIS DOCUMENT.

## Maintenance Logs: Routine Maintenance Log

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### Routine Maintenance

#### Daily

Operator checks water softener **brine tank (S5)** and add salt if less than 1/4 full.

Operator checks pre-filter pressure differential and replaces pre-filter cartridges as needed.

#### Every 3 Months

Maximum time between replacement of **sediment filter cartridge** and **carbon filter cartridges**.

#### Every 9 - 12 Months

Replace **post filter remineralization cartridge**.

#### Minimum 4 times per Year (quarterly)

Check **system adjustments**.

Test product water for compliance with specifications as stated in this manual

#### Every 2 - 3 Years

Replace **membrane element**.

### Routine Maintenance Log

**NOTE:** Record Filter and membrane element changes during routine maintenance in log below.

Date	Brine Tank Full (Y/N)?	Last sediment filter change	Last carbon filter change	Last post filter change	Last membrane element change

**NOTE:** This is a template, make copies as needed.

## Maintenance Logs: Routine Maintenance Schedule

### Maintenance Log

Use this Maintenance Log at each maintenance visit for the RO system. Note settings of RO on every service visit to help track performance of system. **Note settings while RO system is running normally.**

Pre-filter Serial Number: _____	RO Serial Number: _____
---------------------------------	-------------------------

Date/Time							
Technician Initials							
Pre-filter, Outlet Pressure (psi)							
Product Flow (GPH)							
Concentrate Flow (GPH)							
Product Quality (PPM, TDS)							
24 Hour Product GAL							
24 Hour Run Time HR							
Filter Change Due HOURS							
Run Hours HOURS							
Total Product (GAL)							
Pump pressure (psi)							
Concentrate pressure(psi)							
Tank pressure psi, RO starts							
Tank Pressure psi, RO stops							

**NOTE:** This is a template, make copies as needed.



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